DISSERTATION ON

A STUDY ON DUODENAL ULCER PERFORATION

M.S.DEGREE EXAMINATION
BRANCH – I
GENERAL SURGERY

THANJAVUR MEDICAL COLLEGE AND HOSPITAL

THE TAMILNADU DR.M.G.R. MEDICAL UNIVERSITY

CHENNAI

MARCH - 2009

CERTIFICATE

This is to certify that dissertation entitled **A STUDY ON DUODENAL ULCER PERFORATION** is a bonafide record of work done by **Dr.N.KAUSHIK,** in the Department of General Surgery, Thanjavur Medical College, Thanjavur, during his Post Graduate Course from 2006-2009 under the guidance and supervision of **PROF. DR. T. SWAMINATHAN M.S.,** and **PROF. DR. G. AMBUJAM, M.S. FICS.** This is submitted in partial fulfillment for the award of **M.S. DEGREE EXAMINATION- BRANCH I (GENERAL SURGERY)** to be held in March 2009 under the **Tamilnadu Dr. M.G.R. Medical University, Chennai.**

The Professor and Unit Chief,
Department of surgery,
Thanjavur medical college,
Thanjavur.

The Professor and HOD,
Department of surgery,
Thanjavur medical college,
Thanjavur.

The Dean,
Thanjavur medical college,
Thanjavur.

DECLARATION

I declare that this dissertation entitled '**A STUDY ON DUODENAL ULCER PERFORATION** is a record of work done by me in the department of General Surgery, Thanjavur medical college, Thanjavur, during my Post Graduate Course from 2006-2009 under the guidance and supervision of my unit chief **PROF. DR. T. SWAMINATHAN, M.S.,** and professor and head of the department **PROF. DR. G. AMBUJAM, M.S., FICS.** It is submitted in partial fulfillment for the award of **M.S. DEGREE EXAMINATION- BRANCH I (GENERAL SURGERY)** to be held in March 2009 under the **Tamilnadu Dr. M.G.R. Medical University, Chennai.** This record of work has not been submitted previously by me for the award of any degree or diploma from any other university.

DR.N.KAUSHIK

CONTENTS

LIST OF ABBREVIATIONS

M	-	Morning
NT	-	Night
E	-	Evening
A	-	Afternoon
Y	-	Yes
N	-	No
C	-	Cefotaxime
M	-	Metronidazole
GA	-	General Anaesthesia
EA	-	Epidural Anaesthesia
ML	-	Midline
W	-	Wound
L	-	Low Socio Economic Status

INTRODUCTION

Despite the introduction of new drugs and diagnostic tools, the number of patients with perforation of peptic ulcer remains stable in some countries whereas in some countries it is increasing. There are countries where rates of this complication show different trends depending on age and sex.

The mortality has been reduced nowadays due to early medical attention, quick diagnosis and prompt surgical management. But, no single method of treatment is appropriate for every patient with perforated duodenal ulcer.

There are different geographical trends in the duodenal ulcer disease and ulcer perforation. There are also great variations in the type of patients presenting with perforation in different parts of the world and management strategies also differ.

The study was conducted with the aim of analyzing various factors which are of immense value in the diagnosis and management of the disease.

The present study was also carried out to evaluate the age, sex, seasonal periodicity, ulcer size, morbidity, mortality and further follow-up of the patients and anti H.pylori therapy.

HISTORICAL REVIEW

A cute perforation of peptic ulcer is relatively a common complication. It was rarely reported 100 years ago. There is progressively an increase in its incidence during the last few decades in India.

In the year 1944, Illingworth has shown from his 20 years study from 1924 to 1944, a fivefold increase in the incidence of gastrointestinal perforations. Warren Cole assessed the occurrence of perforations in chronic duodenal ulcer and in chronic gastric ulcer was 20.5%.

Rawlison was credited with the first published report in 1727 of a perforated gastric ulcer. The first published report of a perforated duodenal ulcer was by Hambergeiri in 1946.

Heusner was the first to close a perforated duodenal ulcer successfully. Simple closure of a perforated ulcer was done in 1892 by Kriege.

Cellen Jones in 1929 described the most widely used method of closing a perforation with a live omental patch, often wrongly credited to Roscoe Graham.

Moore and colleagues in 1950 found that recurrence of ulcer symptoms after repair of a perforation carried a bad prognosis in their 10 year follow up analysis of 1000 ulcer patients.

Collier and Pain in 1985 reported that 45% of the patients aged 15 years or more presenting with perforated ulcer had consumed NSAIDs.

Watkini et al. in 1984 found that 25% of the patients in the Oxford area were consuming NSAIDs, and 4.8% were taking steroids at the time of perforation.

Hamilton and Harbrecht in 1967 and Khan and Ralston in 1970 reported that operative mortality of truncal vagotomy with PGJ is about 1%.

Jordan, De Bakey and Duncan in 1974 reported 535 emergency partial gastrectomies with an operative morality of 2.2%.

J S Pierandozzi, B B Hin Shaw and O E Stafford in 1960 treated perforated peptic ulcer by vagotomy and pyloroplasty.

Laparoscopic treatment was reported in the year 1990.

Mouret et al. found that laparoscopic management is good because of avoiding large incision, decrease in the wound infection and good peritoneal lavage. He treated 4 out of 5 patients successfully.

In 1997 John Wayman and Simon A Raimes found that simple closure treatement is safe and effective in long term, when combined with H.pylori eradication and pharmacological suppression.

AIM OF STUDY

1. To evaluate the age and sex incidence, socioeconomic status, seasonal trends, duration of signs and symptoms, associations with personal habits like alcohol and smoking, NSAIDs., dietary habits and other diseases in region like ours with particular reference to the prognosis of the patients with perforated duodenal ulcer.
2. To illustrate the various types of clinical presentation.
3. To study the methods of management in our hospital and to evaluate its outcome.
4. To study the diagnostic procedures in cases of perforated peptic ulcer.
5. To study the association of H.pylori and NSAIDs with perforated peptic ulcer.
6. To assess the incidence of post operative complications.
7. Long term review for;
    1. Recurrence of ulcer perforation.
    2. Post operative complications.
    3. Anti H.pylori therapy.

MATERIALS AND METHODS

Materials:

Clinical Evaluation:

Age	Dietery habits
Sex	Clinical features
Socio Ec. Status	Time of perforation
Alcohol, Smoking	Duration of perforation
NSAIDS, Steroids	
Previous ulcer History	

INVESTIGATIONS:

Radiology

Bl.Sugar, Bl.Urea Sr. Creatinine, Sr. Electrolytes

Bl.Grouping.

Peritoneal fluid culture and sensitivity.

Biopsy from perforation site for H.pylori

Peritoneal fluid Culture, and sensitivity.

OPERATIVE MANAGEMENT:

Operative findings

Peritoneal Lavage and its role

Conservative line of Management.

FOLLOW UP

Morbidity

Mortality

Anti H.Pylori therapy – Recurrence.

All the patients who were suspected to have duodenal perforation were admitted in the general surgical wards TMCH. Since June 2006 to September 2008. They were examined thoroughly and findings tabulated, operative reports reviewed and the following data were collected from the reports; Age and sex of patients, location of ulcer, symptoms and signs of perforation routine investigations like Hob, Blood urea, Blood sugar, serum creatinine, blood grouping, serum electrolytes estimation, plain X ray abdomen in the erect posture, abdominal paracentesis, peritoneal fluid culture and sensitivity. H.pylori demonstration in the biopsy from the site of perforation.

STANDARD DRUG REGIMEN USED

Cefotaxime, Gentamicin, Metronidazole and Ranitidine were the standard drugs used.

SCOPE OF STUDY

This study was undertaken with a view to analyse the different modes of presentation, age and sex incidence, etiology, various managements adapted its outcome in patients with duodenal perforation and was compared with those of other studies.

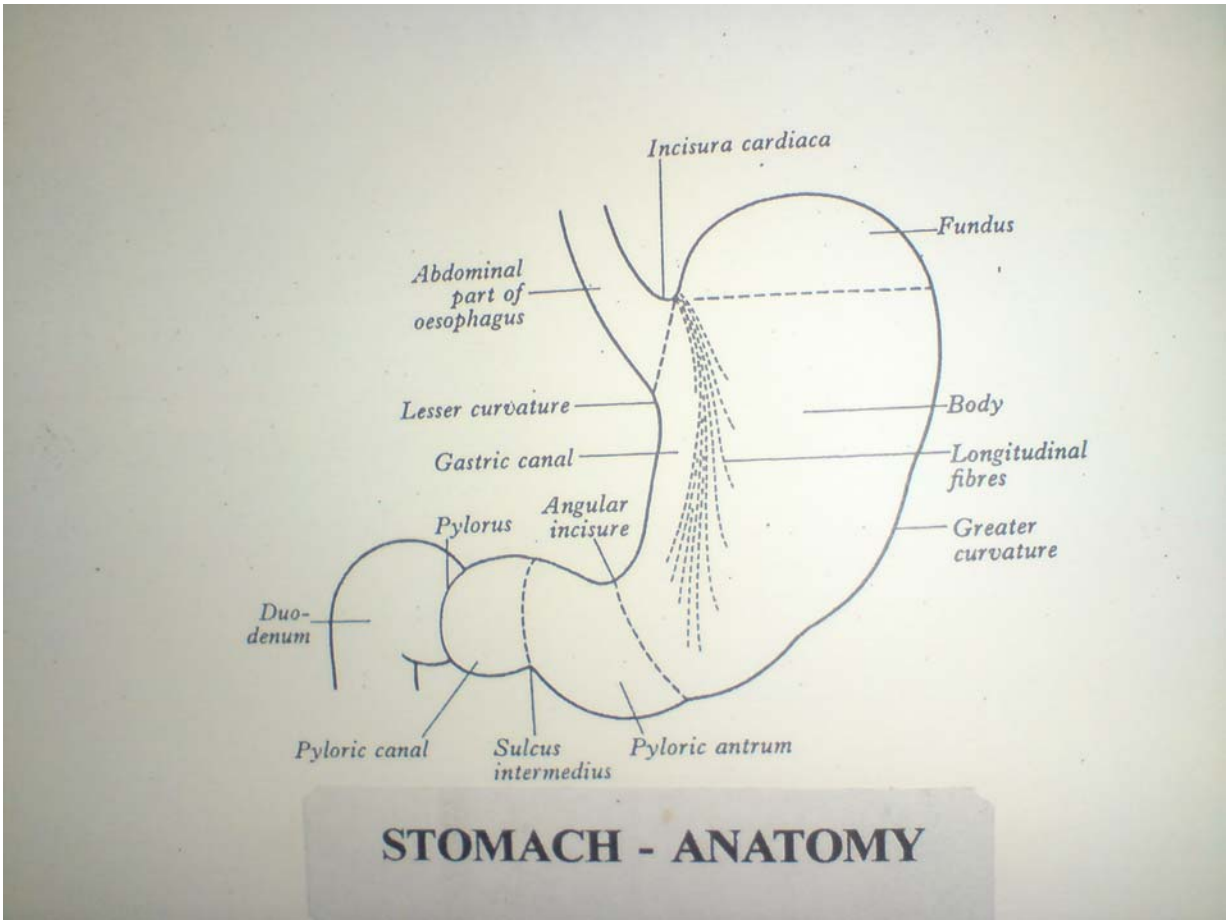
ANATOMY

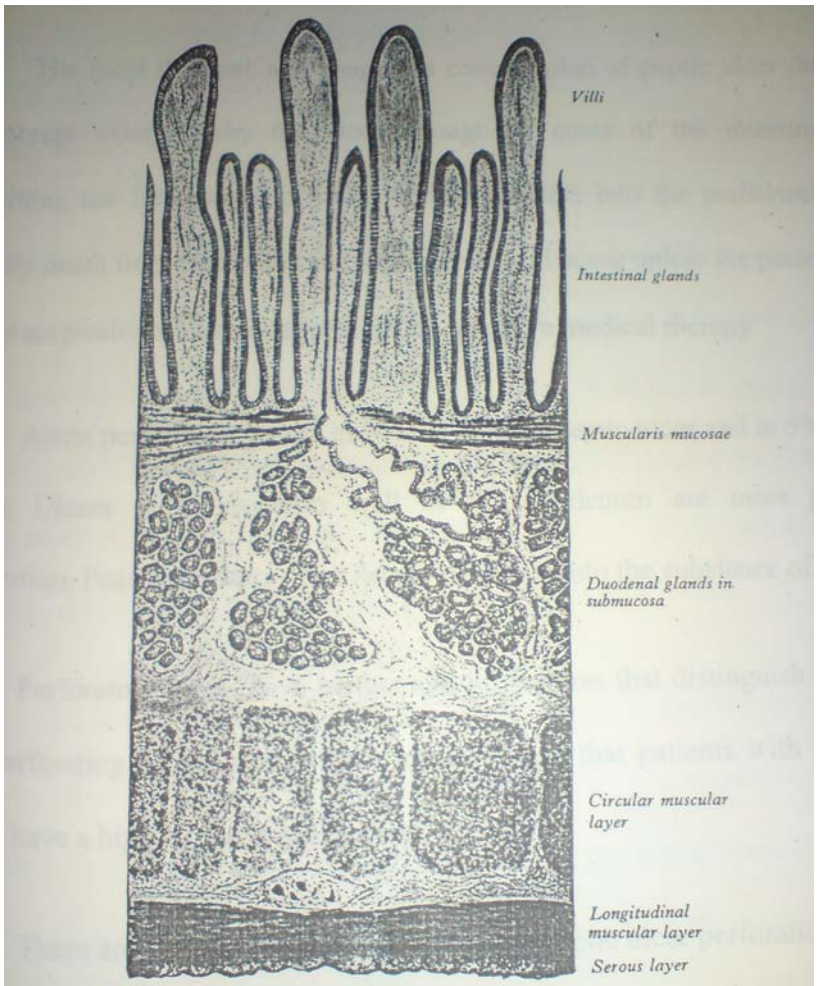
STOMACH

Stomach is part of the embryonic foregut. It is an ovoid musculomembranous digestive pouch below the esophagus. The end which connects with esophagus is the cardiac end the end that in continuous with the duodenum is the pyloric end. The stomach measures about 25 cm in length and 10 cm in diameter. It has a capacity of 0.9 to 1.4 litres. The wall of the stomach consists of serosa, muscularis propria which inturn consists of longitudinal, circular and oblique firbes, submucosa, muscularis mucosa and mucosa from outwards. The secretions of the stomach is gastric juice containing pepsin, mucus and Hcl.

DUODENUM

The duodenum is the first portion of the small intestine, the tubular muculo membranous of the stomach and forms a “C” shaped bend as it curves around the head of the pancreas in its descent to continue as the jejunum at the duodenojejunal flexure. In its course it receives bile and pancreatic secretions. Duodenal wall consists of serosa, muscularis propria, submucosa and mucosa with circular folds of Kerkring. Duodenum is about 25 cm in length. It is the shortest, widest and most fixed part of the small intestine.


Incisura cardiaca
Fundus
Abdominal part of oesophagus
Lesser curvature
Body
Gastric canal
Longitudinal fibres
Angular incisure
Pylorus
Greater curvature
Duo-denum
Pyloric canal
Sulcus intermedius
Pyloric antrum
STOMACH - ANATOMY



DUODENUM - NORMAL HISTOLOGY

PATHOGENESIS

The most dramatic and dangerous complication of peptic ulcer disease is the abrupt extension by the ulcer through all coats of the intestinal wall, permitting the free escape of intra luminal contents into the peritoneal cavity. Usually death from peritonitis and septicaemia will occur unless the perforation is closed surgically or induced to seal off by intensive medical therapy.

Acute perforation occurs in 95% of chronic peptic ulcer and in 5% of acute ulcers. Ulcers in the anterior wall of the duodenum are more prone for perforation. Posterior ulcers often deeply penetrate into the substance of pancreas.

Perforating ulcers have neither special features that distinguish them from non perforating ulcers, nor is there any evidence that patients with perforating ulcers have a higher gastric acid secretion.

There are 2 major factors responsible for peptic ulcer perforation. The first one is H.pylori. H.pylori is universally present in patients with gastric ulcer. It elaborates toxins and induce mucosal inflammation causing decreased mucosal integrity and predisposes to back diffusion of H+ ions(puddle formation)., leading to submucosal injury and ulcer formation. Another hypotheses is, ammonia produced by the hydrolysis of urea by H.pylori urease, increases the pH

of the mucus layer overlying the gastric epithelium. This causes increased gastrin which inturn increases gastric acid secretion and promote duodenal ulcer formation. It can now be said that “No H.pylori, No gastritis, No ulcer”. The eradication of H.Pylori; has decreased the incidence of peptic ulcer complication.

The second factor is the recognition of the role of defect in angiogenesis. Angiogenesis is under the regulatory control of the peptide growth factor and plays a crucial role in the development of solid tumors. In peptic ulcers, basic fibroblast growth factor has recently been shown to stimulate angiogenesis and promote ulcer healing. This process may be evaluated therapeutically in the future as a mean for improving mucosal defense. Other factors include NSAIDs, steroids, major burns, COPD and MODS.

The size of the perforated duodenal ulcer varies from 0.5 to 2.0 cm and is usually smaller than perforated gastric ulcers. The callous ulcer in the greater curvature is always malignant. Posterior ulcer of the stomach usually perforates superiorly in the region of the lesser curvature. Multiple perforations of the stomach were usually close together. The larger the perforation and older the patient, the higher is the mortality rate. The aperture was usually round, oval or slit like and varies in size.

Perforation was rapid due to sudden sloughing of the unsupported portion of the ulcer floor. Immediately after perforation chemical peritonitis supervenes. This lasts for 8 to 12 hours then goes in for septic peritonitis. But if gastric contents were neutral or alkaline secondary to gastritis or ingestion of alkaline drugs, septic peritonitis supervenes earlier.

Intestinal obstruction occurs in 36 to 48 hours after perforation. This is the paralytic stage of general peritonitis. This pus thus formed may track upwards or downwards to form sub phrenic or pelvic abscess respectively.

In acute type, the ulcer perforates and the general peritoneal cavity is flooded with gastrointestinal contents, whereas in the subacute type, only circumscribed area of peritoneal cavity was contaminated by leakage.

OPERATIVE PROCEDURES

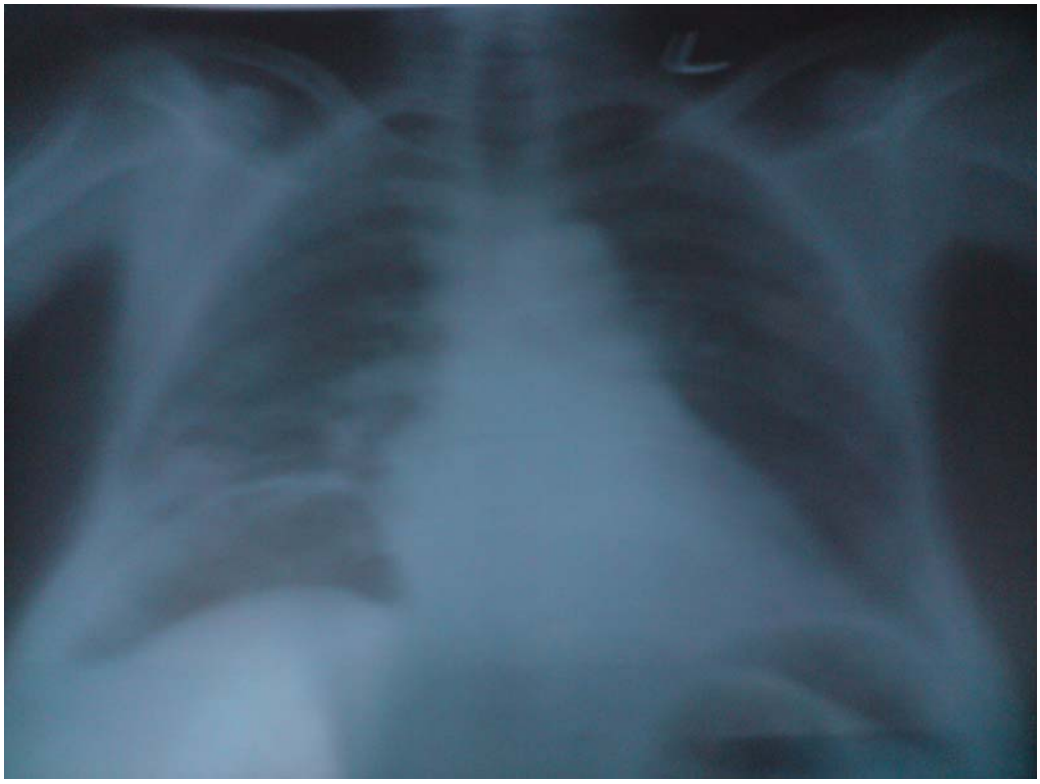
The abdomen is opened by an upper midline incision if perforation is suspected. In patients with perforation, gas and turbid bile stained fluid often escape as the peritoneum is incised. Free fluid is aspirated from the peritoneal cavity and the site of the perforation is established. The anterior aspect of the first part of the duodenum and distal stomach are inspected first. A retractor is inserted beneath the liver and the stomach is drawn down, first by gentle traction on the transverse colon and gatrocolic momentum and then grasping it with moist pack. Overlying momentum is gently peeled away by blunt dissection with a

guaze swab. Flakes of creamy fibrin often adhere to the gut near the perforation and are a useful guide to its location.

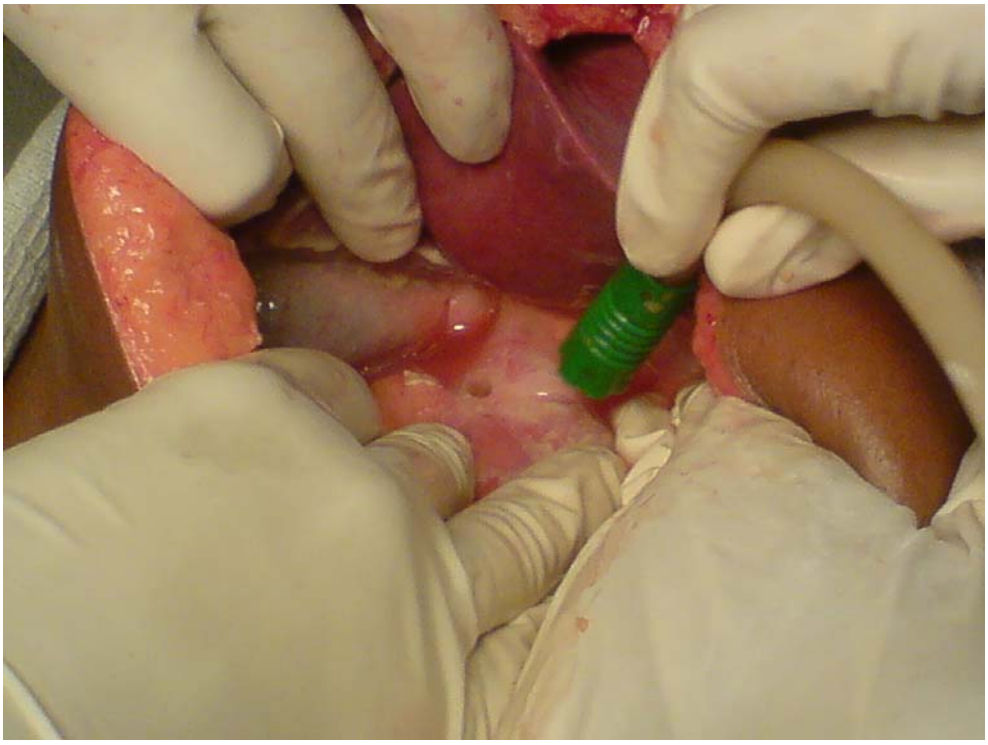
If perforation of the proximal duodenum or distal stomach is not apparent the remainder of the anterior aspect of the stomach and distal esophagus is inspected. If no perforation is found in the upper gastro intestinal tract, the colon the rectum and the small bowel are inspected.

Simple closure is the quickest and most appropriate method of dealing with the perforated duodenal ulcer. Retractors are arranged to give the best possible access and any viscera which intrude are packed off. Closure is achieved by inserting three or four gauge O sutures of absorbable material - vicryl which are passed through the entire thickness of the gutwall. The central suture which crosses the perforation is tied last so that it is less likely to cut off the edematous gutwall. The sutures are inserted in the long axis of the gut to avoid narrowing of the lumen. An additional layer of seromuscular lembert sutures is not recommended. A tag of omentum is used to reinforce closure by tacking it lightly with the suture over the suture line. If scarring makes pyloric or duodenal obstruction inevitable after closure pyloroplasty or gastroenterostomy may be unavoidable.

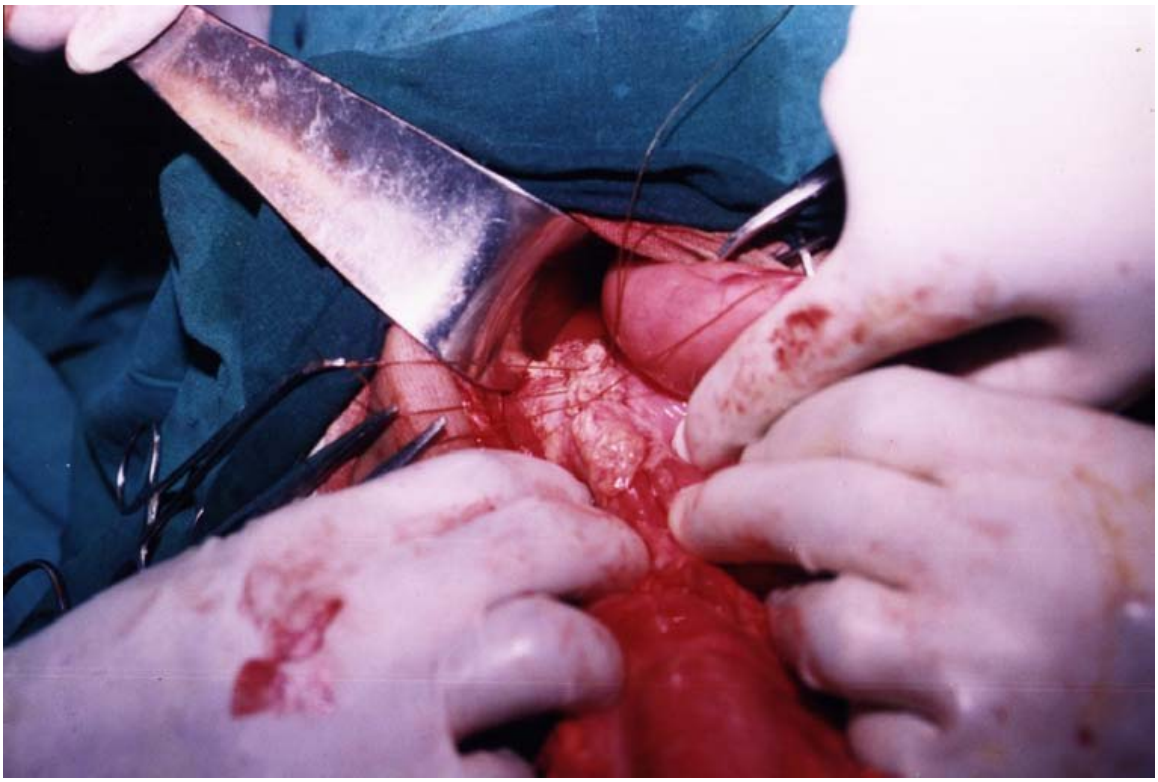
RADIOIGRAPH SHOWING AIR UNDER DIAPHRAGM



INTRAOPERATIVE PICTURE SHOWING DUODENAL PERFORATION



PERFORATION CLOSURE WITH LIVE OMENTAL PATCH



Where the induration is so marked that sutures tend to cut out, the perforation can be closed with omentum alone. Closure of the perforation is followed by meticulous peritoneal toilet. The subphrenic spaces, paracolic gutters and pelvis are cleared of fluid by suction and by using large packs. Lavage is advisable and is carried out with warm saline. The abdomen is closed with drainage. H2 receptor antagonist should be given for 1 month starting at the time of perforation. Antibiotic therapy is reserved for specific indications such as bacterial peritonitis or chest infections.

The role of emergency definitive ulcer surgery remains controversial. Medical treatment is more so effective that emergency definitive surgery is only indicated for those patients whose ulcer perforates whilst they are taking H2 receptor antagonist or omeprazole. In such patients definitive surgery is considered if; (a). anesthetic and surgical facilities are ideal. (b). the surgeon is experienced in definitive surgery. (c). the patients general condition is without any risk. (d). purulent peritonitis is not present.

The case for definitive surgery is strengthened;

1. When the closure of stenosed duodenum or pylorus would cause obstruction.

2. When the patient has had a previous perforation treated by simple closure.

3. When the patient has a perforated gastric ulcer and malignancy is suspected.

4. When perforation and bleeding occur together.

The definitive operation usually advocated for a perforated duodenal pyloric or prepyloric ulcer is truncal vagotomy with drainage. The choice between pyloroplasty and gastroenterostomy is indicated by conditions prevailing in the pyloro duodenal area. Partial gastrectomy is no longer recommended.

Perforation of a gastric ulcer should always raise a suspicion of malignant ulceration particularly in the elderly. Given favorable circumstances the preferred operation is partial gastrectomy including the ulcer with gastro duodenal anastomosis.

The advent of powerful acid suppressing agents has reawakened interest in the conservative management of the perforatd peptic ulcer. In the majority of patients operation remains the treatment of choice and in selected situations conservative management should be considered.

Conservative management is indicated:

1. When the risk of general anesthesia is considered too great. For example conditions like Acute myocardial infarction, lobar pneumonia etc.
2. When appropriate surgical and anesthetic skills or equipment are not available.
3. In patients who have clinically sealed perforation at the time of presentation.
4. When Gastrograffin swallow shows no leakage of contrast.

Conservative therapy has the disadvantages that the site of perforation remains in doubt and the nature of the underlying condition remains uncertain.

Conservative management consists of continued nasogastric aspiration, nil by mouth, intravenous fluids, H2 receptor antagonist and sedation. Antibiotic cover is generally adviced. Conservative therapy is abandoned in favour of

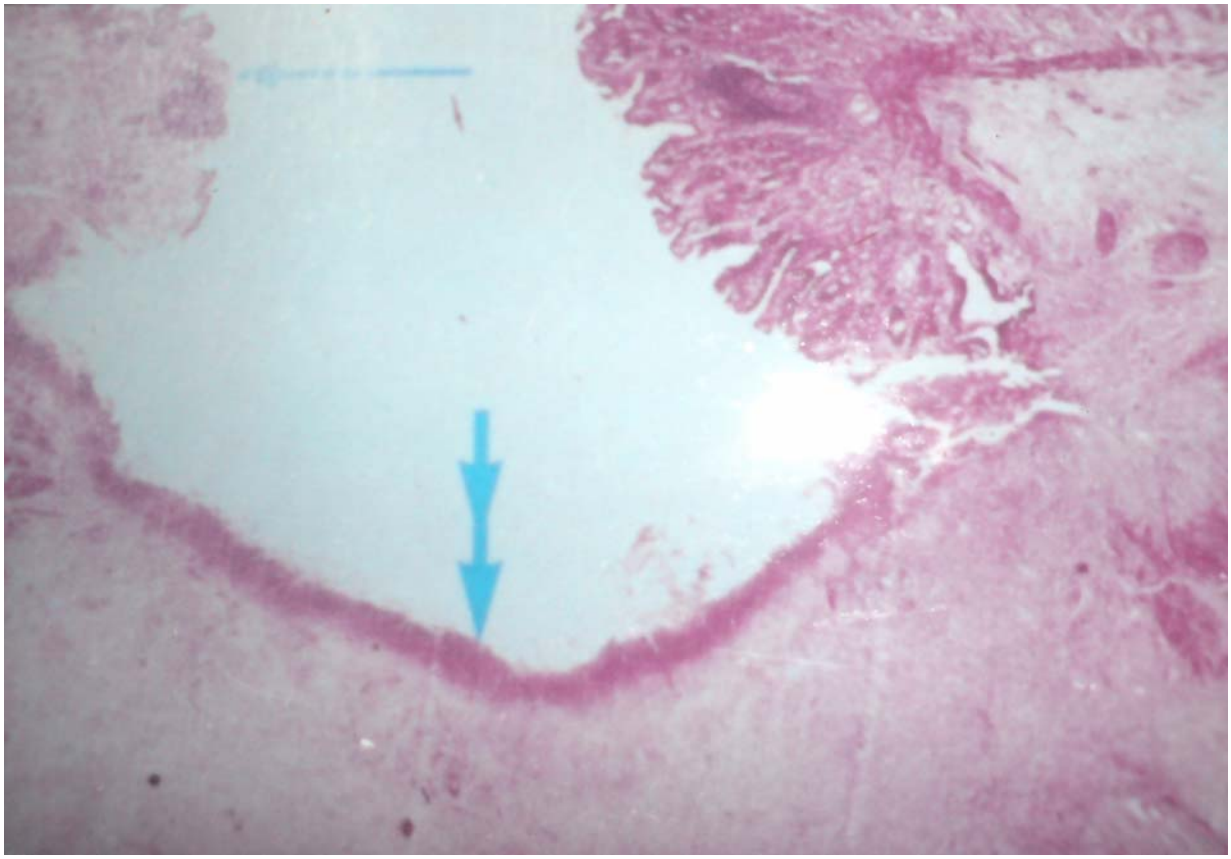
surgery if clinical deterioration suggests continued leakage and worsening peritonitis.

HISTOLOGY

In peptic ulcer perforation there will be areas of fibrosis or scar identified in the region of ulcer. Superimposed on it there may be an acute inflammation in and around the area of perforation ranging from mild cellulitis with neutrophils as the dominant cells to an extreme response suggesting phlegmon.

Inflammed peritoneum looses its glistening appearance and becomes red and velvety. Flakes of fibrin appear and cause loops of intestine to become adherent to one another and to the parietal wall. There is an out pouring of serous inflammatory exudates rich in leukocytes, plasma proteins that soon becomes turbid, if localization occurs the turbid fluid becomes frank pus. The greater momentum by enveloping and becoming adherent to the inflamed structures often form a substantial barrier to spread of infection.

BIOPSY SHOWING DUODENAL PERFORATION WITH EVIDENCE OF ACUTE INFLAMMATION



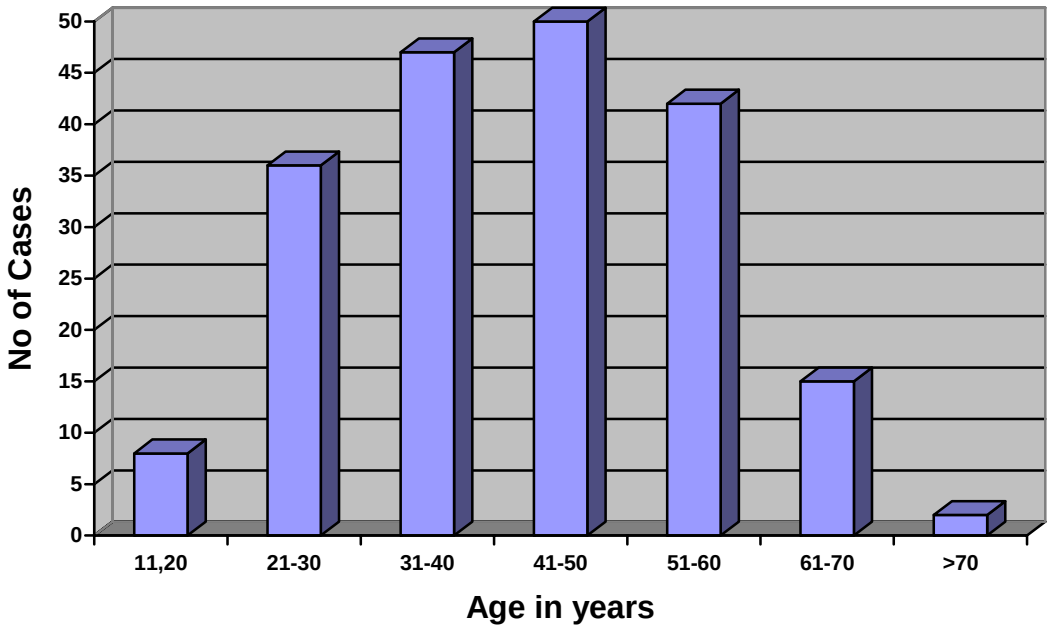
OBSERVATION AND RESULTS

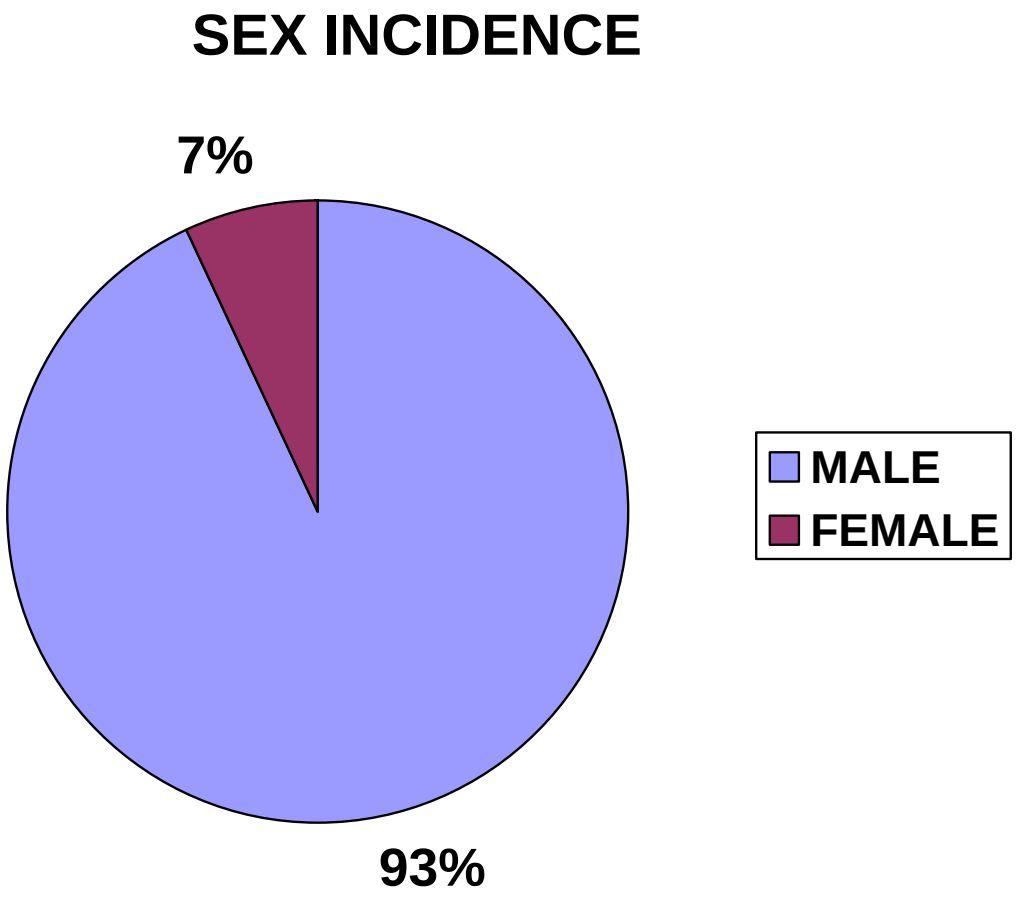
In the period between June 2006 to September 2008, 200 cases of perforated duodenal ulcer were admitted in the general surgical ward Thanjavur medical college hospital. Since Thanjavur medical college hospital is a tertiary centre most of the cases were from Thanjavur town and from the adjacent towns of Kumbakonam, Ariyalur, Mannarkudy, Pudukkottai and Pattukkottai.

1. Age incidence: Majority i.e., 48.5% of the patients were between 31 to 50 years. The youngest was 19 years and the oldest was 72 years.

Age in yrs.	**Males**	**Females**	**Total**	**%**
11-20	8	-	8	4%
21-30	34	2	36	18%
31-40	44	3	47	23.5%
41-50	44	6	50	25%
51-60	40	2	42	21%
61-70	14	1	15	7.5%
>70	2	-	2	1%
Total	**186**	**14**	**200**	**100%**

AGE INCIDENCE





2. Sex incidence: 93% of the patients were males, 7% were females.

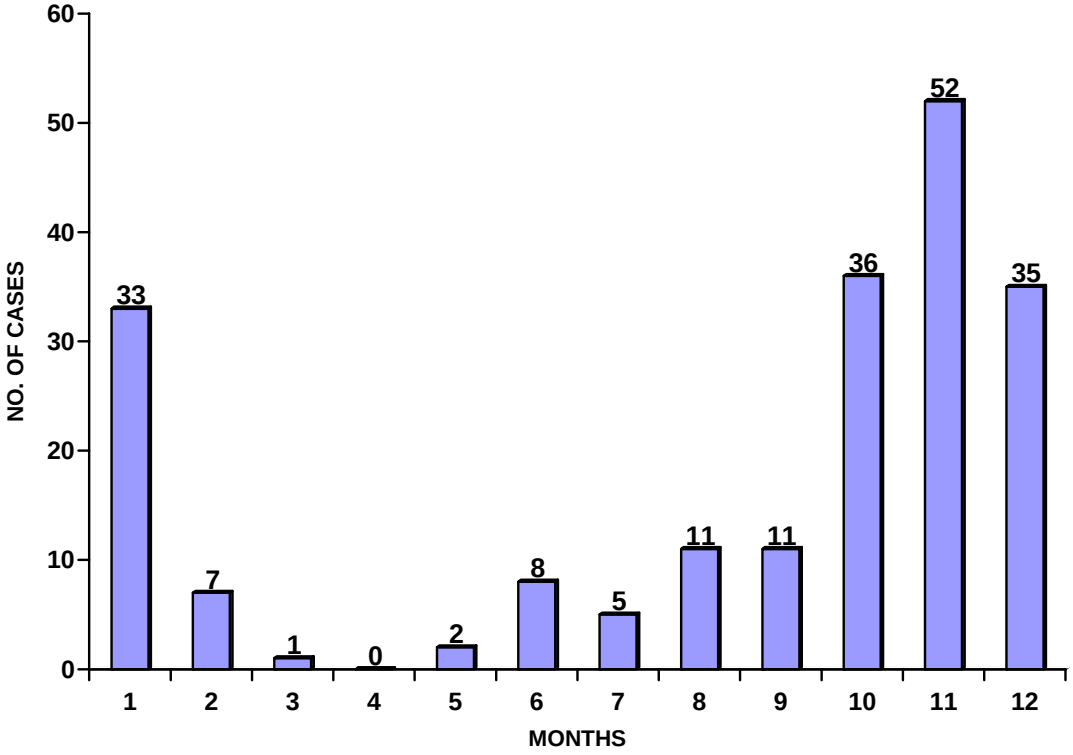
3. Socioeconomic status: All patients in my study were of the low socioeconomic group.

4. Seasonal trends: Cases were maximum during winter season (October, November, December, January) about 70%.

SEASONAL TRENDS

MOHTHS	NO. OF CASES	%
JANUARY	33	16.5
FEBRUARY	7	3.5
MARCH	1	0.5
APRIL	-	-
MAY	2	1
JUNE	8	4
JULY	5	2.5
AUGUST	11	5.5
SEPTEMBER	11	5.5
OCTOBER	36	18
NOVEMBER	52	26
DECEMBER	35	17.5

SEASONAL TRENDS



5. **Predisposing factors:**

   NSAID users - 55%

   Alcohol - 25%

   Smoking - 20%

In case of NSAIDs an interval between history of intake of drugs and perforation was about 12 – 24 Hours.

6. Previous peptic ulcer history: 23% of the patients had previous peptic ulcer history. Some of the patients were under treatment with H2 blockers, proton pump inhibitors and antacids. Some of them were on irregular treatment.

7. History of previous surgery: There were no patients who had surgery for similar complaints.

8. Diet: 89% of patients in the study were taking mixed diet. 11% of patients were pure vegetarians.

9. Clinical presentation: Most of the patients in the study had abdominal pain and vomiting.

   a. Site of pain : Epigastrium - 56%

Right Hypochondrium - 20%

Right iliac fossa - 2%

Non specific - 22%

10. Vomiting: 80% of the patients had bilious vomiting.

SIGNS

1.Abdominal tenderness, guarding and Rigidity:

All patients on admission had abdominal guarding, rigidity and tenderness.

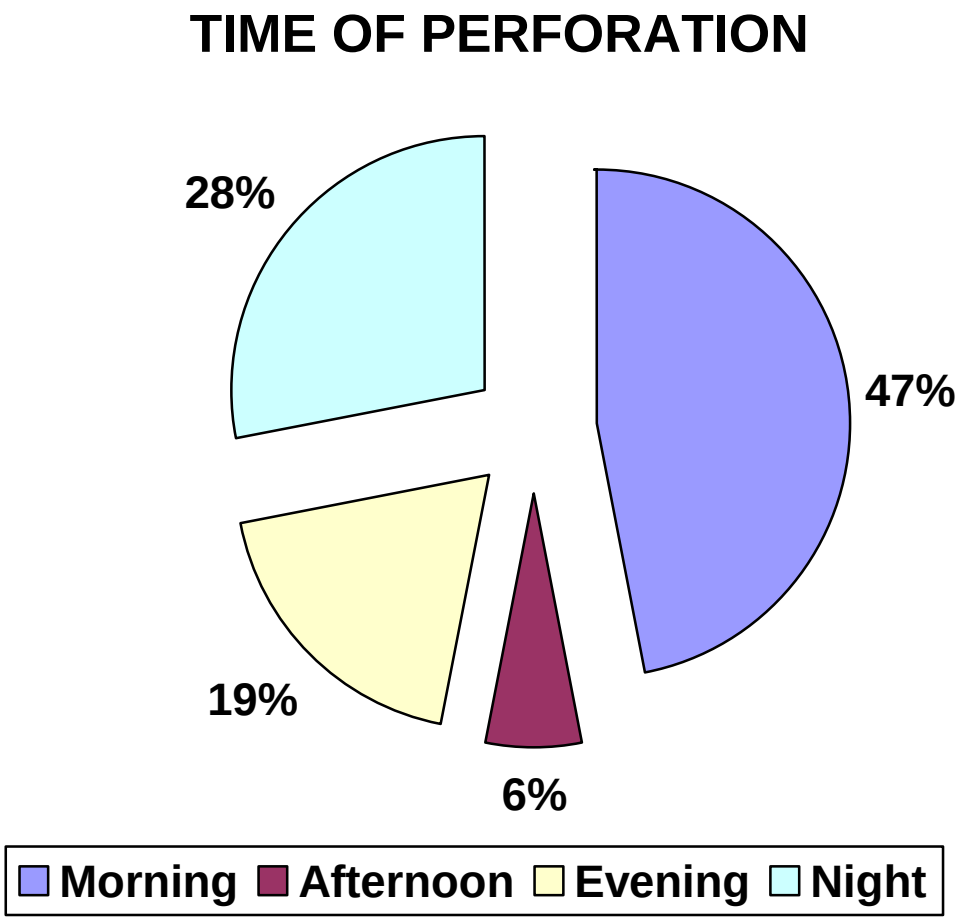
Obliteration of liver dullness was present in all.

2.Time of perforation:

Most of the patients had perforation in the night and in the early morning.

TIME OF PERFORATION

TIME	NO. OF PATIENTS	%
EARLY MORNING	94	47
AFTERNOON	12	6
EVENING	38	19
NIGHT	56	28


TIME OF PERFORATION
28%
47%
19%
6%
Morning
Afternoon
Evening
Night

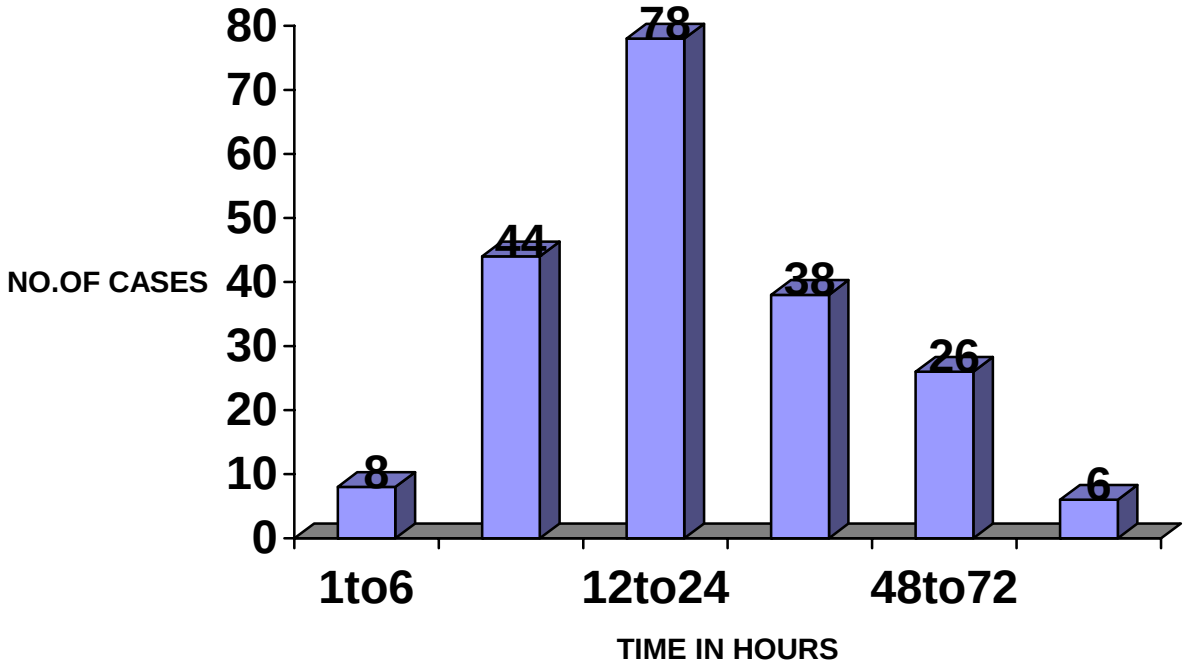
3.Duration of illness:

Most of the patients got admitted between 12-24 hours following perforation. Mild dehydration was present in many of them. It was treated appropriately.

DURATION OF ILLNESS

TIME	NO.OF PATIENTS	%
1-6hrs	8	4
6-12hrs	44	22
12-24hrs	78	39
24-48hrs	38	19
48-72hrs	26	13
>72hrs	6	3

DURATION OF ILLNESS



INVESTIGATIONS

Blood urea and serum creatinine

Eight patients had raised blood urea and serum creainine levels.

Serum electrolytes : Hyponatremia in 36% of patients , hypokalemia in 28 % of patients

Plain X-ray Abdomen

All cases had pneumoperitonium in the plain X ray abdomen erect posture(Air under the diaphragm).

X ray chest P.A.view taken for all the patients showed air under the diaphragm.

MANAGEMENT

13 patients were not fit for surgery, so bilateral flank drainage was done. 9 of their patients died. All were above 50 years of age.

Rest of the 187 patients were prepared for surgery. 23 patients died post operatively due to late presentation, acute renal failure, and septicemia.

ANAESTHESIA

General anaesthesia : 173 cases.

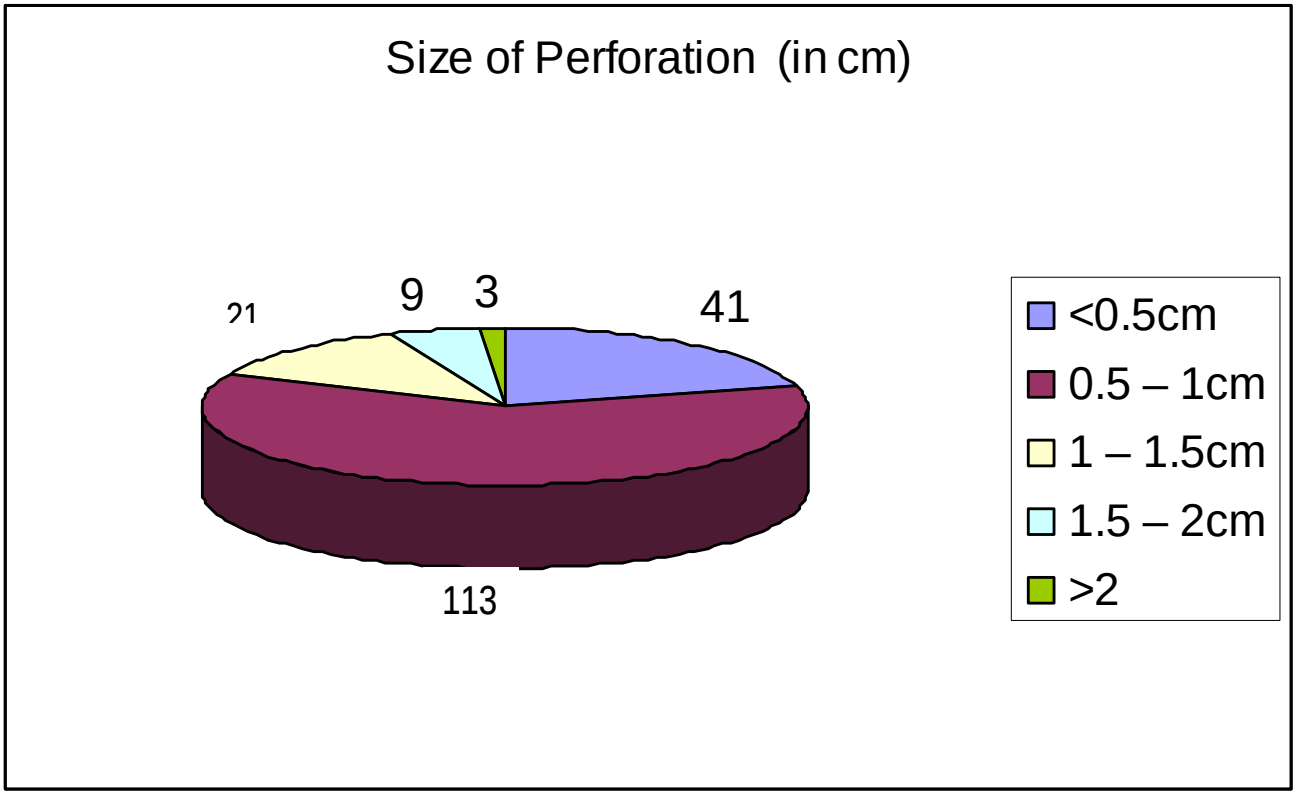
Epidural anaesthesia : 14 cases.

INCISION

Upper midline incision: 187

SIZE OF PERFORATION

Size of perforation	**No. of patients**
<0.5cm	41
0.5 – 1cm	113
1 – 1.5cm	21
1.5 – 2cm	9
>2	3


Size of Perforation (in cm)
21
9
3
41
113
<0.5cm
0.5 – 1cm
1 – 1.5cm
1.5 – 2cm
>2

NATURE OF PERITONEAL FLUID

Nature of peritoneal fluid	No. of patients.
PURULENT	54
BILIOUS	146

DEATHS

Age in yrs.	SEX		No. of deaths
	M	F	
11-20	-	-	-
21-30	3	1	4
31-40	2	1	3
41-50	6	2	8
51-60	3	-	3
61-70	5	-	5
>70	-	-	-

Post operative day	No.of deaths
<1	1
1-2	8
3-4	8
5-6	3
7-8	-
9-10	1
>10	2

MORBIDITY

The post operative period of 164 patients was uneventful and the remaining had morbidity. And the morbidity were due to

1. Duration of perforation > 24 hours
2. Amount of fluid in peritoneal cavity > 1000ml
3. Size of perforation > 1cm
4. Nature of fluid was purulent.

The above features increases the post operative hospital stay and further complications as below

1. Enteral feeding was delayed due to paralytic ileus in six patients.
2. Wound infection occurred in fifteen patients.
3. Wound gaping developed in six cases and secondary suturing was done.
4. Febrile episodes presented once or twice in 18 cases treated conservatively.

FOLLOW UP

Anti H.pylori therapy – Triple drug regimen for 14 days given.

During the follow up period of 3 months , subacute intestinal obstruction occurred in three patient and were treated conservatively. Incisional hernia occurred in six cases and Anatomical repair was done. Active duodenal ulcer was present in two patients after simple closure of perforation. One was treated with Truncal vagotomy with posterior gastro jejunostomy due to gastric outlet obstruction and the other was treated conservatively with anti H.pylori therapy and proton pump inhibitors

DISCUSSION

Perforated peptic ulcer is one of the common acute emergencies in surgical practice as seen by published data from India and Abroad.

Perforated gastric and duodenal ulcers were first reported in 1727 and 1746 respectively. It continues to account for 10% of the hospital admissions and occurs in 7-10 patients per year per 100,000 population. Although this emergency can occur at any age, it is important to be prepared for its management in an increasingly older population. The diagnosis will be difficult most often than a GIT problems, particularly neurological problem. Left undiagnosed and untreated, those patients will die due t continued loss of intra vascular fluid subsequently hypotension and shock.

Nowadays the demographic changes in the age and sex distribution are due to increased consumption of NSAIDs and injury due to H.pylori in the wall of the duodenum and stomach.

In 19^{th} century majority of the perforations were gastric and most commonly occurred in young women. Now-a-days duodenal perforation exceeds gastric perforations. Men are more affected than women.

AGE INCIDENCE

In general the age incidence of perforation is approximately same as of peptic ulcers. About 75% occur in third, fourth and fifth decades and 25% only in the first and second decade. In 1940 Debakey reported 23% incidence >50 years of age. Devitt and Taylor reported in 1966 that 35% were older than 60 years. In India Bhattacharya et al. in 1969 showed increased incidence within the age group of 30 to 40 years. In the present series 48.5% of cases occurred between 31 to 50 years which correlates well with the above results.

STUDY	YEAR	%	Age groups
De Bakey	1940	>23%	>50 yrs
Taylor	1966	35%	>60 yrs
Goyal & Gupta	1966	32%	30-40 yrs
Bhattacharya et al	1969	32%	30-40 yrs
Jerzy, Jarnik Piotrchwinot Poland	1799-96	33%	35-55 yrs
Present series	-	48.5%	31-50 yrs

SEX INCIDENCE

STUDY	YEAR	MALE	FEMALE
Hoyer	1957	90%	10%
Mattinglyed et al	1980	88%	12%
Malhotra et al	1967	95%	3.1%
Jerzy, Jarnik Poland	1996	75%	24%
Present series	-	93%	7%

In 1957, Hoyer reported that 90% of perforations occur in males and 10% in women. Malhotra from South India reported in 1967 that 95% of perforations occur in males and 3.1% in females. In Poland series 1966, it was found that the incidence of perforation was 75% in males and 24% in females. In our present series 93% occurred in males 7% in females.

OCCUPATION

According to Tilton in his analysis of 50 cases, 33 were leading a sedentary life. In the present study all the patients were labourers and of the low soc ioeconomic group.

SEASONAL TRENDS

There is an increase in the incidence of ulcer perforation in winter seas as shown by Jamieson; Jerzy Janik also showed an increased incidence during winter months and most commonly in the afternoon and Night. The present series shows a similar trend and the time of occurance was most commonly during night and early morning.

CLINICAL FEATURES

ETIOPATHOGENESIS

There is both experimental and clinical evidence that corticosteroids augment the frequency of perforation. Roseman and Economou pointed out that perforation in so called steroid ulcers can be particularly treacherous. Duggan found that over 50% of 118 patients with acute free perforation were regular NSAID users and alcoholand smoking were associated factors. Donoldson and Juarret found that 36(7%) of 471 patients had history of peptic ulcer. In my series 25% of patients had history of alcohol or smoking, 55% were NSAID and 23% had previous peptic ulcer disease.

PREDISPOSING FACTORS:

Study	Alcohol	Smoking	Steroid & NSAIDS	Pervious pepticulcer history
DUGGAN	-	-	50%	-
DONALDSON & JARRET	-	-	80%	7%
COLLIER PAIN	-	-	48% steroid	-
WATKINI ET AL	-	-	25%	-
SWISS MED 2001	-	-	32%	23%
RAO	-	-	-	30%
PRESENT SERIES	32%	37%	54% NSAIDS	30%

As shown by other studies, usually 75% of the patients have a previous history of gastric or duodenal ulcer, whereas 20% have a history of gastrointestinal haemorrhage. An acute exacerbation of symptoms immediately preceeding the perforation was found in 75% of cases. The initial pain usually begins abruptly in the midepigastrium. The direction and extent of radiation of the pain depends on the amount of gastric contents spilling into the peritoneal cavity, the anatomic course followed by the irritating substance, and the degree to which the peritoneal defences can limit its spread.

In perforated ulcer the abrupt onset can be timed almost to minutes, and the pain is sharp from that moment.

Usually nausea and vomiting accompany the pain of perforated peptic ulcer. Tachycardia, pallor and cold profuse perspiration is often present. However actual shock with hemodynamic collapse is unusual. In mikal and Morrison’s 500 cases shock was present in 5% of cases only.

The physical findings in acute perforation are due to peritoneal irritation. In many instances, whole abdominal wall will be of board like rigidity. After 3 to 4 hours, more marked tenderness is found in the right lower abdominal quadrant because of gravitation of the irritating gastric content along the paracolic gutter in that direction.

Unless the treatment is begun, grave events are likely to ensue and the clinical picture of generalized peritonitis with fever and increased pulse rate and pain reappear. If left untreated the patient worsens, develops fulminating diffuse peritonitis and sings of true shock and ultimately the patients dies.

RADIOLOGY

One of the reliable diagnostic aid in perforation is the X-ray demonstration of pnemoperitoneum. Paul Jordan et al. 1988 (SCNA) shows positive radiographic findings in 60 to 85% of the patients. Paster B Brogdon BG.JAMA 1976 showed positive findings in 70% of the cases. JIPMER study shows that pneumoperitoneum was demonstrable in 80% of the patients. In the present series radiographic positivity was 100%.

Another useful radiologic examination is the contrast study using orally administered water soluble substance such as diatrizoate (Gastro griffin). The oral administration of such material may confirm perforation and reveal the extent of egress of gastric contents into the peritoneal cavity. The use of Barium for contrast is, of course, contraindicated when ther is danger of the Barium reaching the peritoneal cavity.

RADIOLOGY – PREUMOPERITONEUM (AIR UNDER THE DIAPHRAGM)

STUDY	+VE	-VE
Paul Jorden et al (SCNA 1988)	60-85%	15-40%
Pasters B, Brogdon BG (Jama 1976)	70%	30%
JIPMER Study	80%	20%
Present Series	100%	-

MANAGEMENT

After resuscitating the patients with preoperative Intra venous fluids and antibiotics, patients were prepared for emergency surgery. For specific management of the acutely perforated ulcer 3 modes of treatment are available.

1. Non operative therapy
2. Surgical closure of the perforation.
3. Immediate definitive procedure.

Wangenstein in 1935 and 1972 reported nonoperative management affirmed its value in selected patients. In recent years its role is limited. Indications for nonoperative management are

1. The patient is considered to be at high risk for surgery

2. The diagnosis is in doubt.

In my present series, 13 patients all of whom in moribund status were treated conservatively using nasogastric suctrion, intravenous fluids, bilateral flank drainage and antibiotics.

The treatment of acute perforated ulcer in the majority of cases is surgical. The first surgery for acute perforation of ulcer was performed by Mikulicz in 1880. The patient died 3 hours after the surgery. Brain introduced gastrojejunostomy in addition to simple closure. Keetley in 1902 first peformed gastric resection for perforated ulcer.

Simple suture of the perforation consists of 2 rows of Lembert sutures with drainage of site of ulcer and pelvic drainage. In cases of frank peritonitis, Bennet introduced the insertion of plug of momentum into the opening and suturing it in its position by few Lembert sutures. Whereas Cellen Jones and Roscoe Graham adapted 3 Lembert sutures with live omental patch.

The chief virtue of the closure method lies in the simplicity and effectiveness for the emergency condition. Closure performed during a relatively short period of anesthesia and least burden to the patient.

Following simple closure of serosal perforation by suture, most patient do well temporarily that the remaining mucosal ulceration is often forgotten, therefore post operative medical management should follow.

A definitive operation involves a procedure for the ulcer disease together with the removal of ulcer bearing segment. Vagotomy with pyloroplasty and drainage procedures have received attention as safe definitive procedures for perforated peptic ulcer but about 30% of the cases develop anastomotic ulcer at within a period of 5 years.

VARIOUS LINE OF MANAGEMNT

Study	Conservative	Simple closure	PGJ with TV	Partial gastrectomy
Hamilton 1967	-	44	36	-
Boey et al	-	322	150	-
Wara et al	-	90	71	-
Taylor	-	100	-	-
Debakey 1974	-	-	-	535
Present series	13	187	-	-

Moynihan, in 1901 recommended gastrojejunostomy after closure of perforation. Deaver also stressed the necessity of primary gastrojejunostomy. Various studies show that simple closure is most often followed by recurrence. PGJ with vagotomy has less recurrence. Anti H.pylori therapy following simple closure irrespective of being positive or negative reduces recurrence.

RECURENCE OF D.U.PERFORATION

Study	Simple	TV with PGJ	Proximal gastrectomy
Boey et al 88	37%	11%	-
Graham	22%	-	-
JIPMER study	68.8%	10.5%	-
Present series	-	-	-

Zachary Cope dealt with the situation by doing pyloroduodenectomy, whereas Van Haberer adapted gastric resection in both gastric and duodenal ulcer perforations. Bisgard performed gastrectomy even in the presence of diffuse soiling of peritoneum but mortality rate was very high.

During surgery, peritoneal fluid from the peritoneal cavity from the site of perforation was taken for H.pylori study H.pylori was isolated from the gastric biopsies in 1983 by Barry Marshall.

H.pylori is a gram negative organism 3 x 0.5 micron size, spiral rod located adjacent to the gastric epithelium. The Warthin Starry silver stain advocated Warren tends to magnify the organisms making them more prominent. Diagnosis can also be made by culture is sensitivity of 70% to 95% with specificity of all 100%. Urease test: Urease catalyses the degradation of urea to ammonia and bicarbonate. This reaction causes an increase in the pH of the surrounding medium which can be detected with a pH indicator. Positive test can be read within a few hours. Other tests are not available here. In my study 30 cases studied for H.pylori. It was positive in 12 cases.

H.PYLORI STUDY

	No. of Pts	Positive	Negative
Reinbach 1993	80	47%	53%
Sebastian 95	29	83%	17%
Chowdry 98	15	0%	100%
Chu 99	163	47%	53%
NY 2000	129	81%	19%
Sharma 2000	44	61%	39%
Present study	30	40%	60%

The peritoneal fluid culture grown E.Coli and Klebsiella in 25% of patients and are compared with other studies given as below.

	% of +ve culture	Organisms	No growth
Paul H Jordan	62%	Klebsiella E.coli, pseudomonas, Candida	38%
Mikal & Mornison	25%	Streptococcus staphylococcus Candida, Aerobacter aerogeneous	75%
Bisbank & Roe	44%	Streptococcus staphylococcus Candida, Aerobacter aerogeneous	56%
Present series	25%	E.coli, Klebsiella,	75%

It might be safely assumed that during first 6 hours of perforation the peritonitis was non infective whereas in perforation of more than 8 to 12 hours duration, the peritoneal fluid would be infective. In this study also showed the similar features.

The pH of the peritoneal collection was alkaline at the time of perforation and acidic after perforation. Septic peritonitis was due to bacterial contamination from infected gastric and duodenal contents. The commonly isolated organisms are Streptococci, Staphylococci, Coliform group and Pneumococci and others.

The potential requisites for suppurative infection exist in all cases of free perforation. Cultures should be obtained from all patients; If the culture prove an unsuspected contamination, antibiotic therapy can be appropriately modified. Post operative period was uneventful in majority of the patients.

FOLLOW UP AND LONG TERM RESULTS

The patient who survives immediate mortality period following an acute free perforation is by no means had overcome his disease. In fact, if the treatment consists of simple closure, the patient is twice as likely to have recurrence but with the introduction of anti H.pylori therapy, the recurrence has markedly decreased.

	No. of cases	**Simple closure**	**Mortality**
Silmar & Saint	64	63	15.5%
Houstan	184	184	8.2%
A very Jones	365	365	4.9%
Chatterjee et al	132	126	5.7%
Present study	200	187	11.5%

CONCLUSION

This study of 200 cases of duodenal ulcer perforation at the Thanjavur Medical College and Hospital, Thanjavur during the period of June 2006 September 2008 shows the following results:

1. Duodenum ulcer is common in our series.
2. Most common age group is between 31 to 50 years.
3. Males are more affected than females (9 : 1).
4. All the patients are of the low socioeconomic group.
5. Perforation most commonly occurs in winter months October, November, December and January (78%).
6. The most common predisposing factor is NSAID induced (55%).
7. In our study 100% of patients had pneumoperitoneum in radiographs.
8. Time of occurrence of perforation is predominantly in night and early morning (75%).
9. Majority of patients seek medical attention 12 to 24 hours following perforation.
10. Site of perforation is most commonly the I part of duodenum.

11. Size of perforation in 70% of patients is between 0.5 to 1.0cm.

12. H.pylori is positive in 40% of patients.

13. Organisms present in the peritoneal fluid culture were E.coli, Klebsiella.

14. Simple suture with live omental patch is done all cases.

15. Anti H.pylori therapy decreases recurrence as evidenced by endoscopy done during the follow up period.

16. Post operative endoscopy done after 3 months for 10 patients revealed healed ulcer.

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PROFORMA

NAME: AGE: SEX:M/F UNIT:

I.P.NO: DOA:

DOS:

DOD:

HISTORY:

Known APD patient : yes/no(period:Rx:reg/irreg)

H/o drug intake :yes/no(name of the drug)

SYMPTOMS	DURATION
Abdominal pain	
Abdominal distention	
Vomiting	
Constipation	
Others	

PROBABLE TIME SINCE PERFORATION:

SINGS	YES/NO
Tenderness	
Rebound Tenderness	
Guarding	
Rigidity	
Liver dullness obliteration	

GENERAL EXAMINATION:

Anaemia Fever Cyanosis Others
Dehydration(nil/mild/moderate/severe)
Urine output(ml/hr) Pulse: BP: / mmHg

INVESTIGATIONS:

Plain X-Ray abdomen erect: Pneumoperitoneum(Yes/No)
Multiple Fluid levels(Yes/No)
Chest X-ray PA view ECG
Blood Sugar mg% Urea:mg% serum Creatinine – mg% Bl.Grouping
Serum Electrolytes : Na: Meq/LK: Meq/1

PRE-OP-TREATMENT

IVF:FLUID Pints
Antibiotics : Dose:

PEROPERATIVE:

Incision: midline/RPM

Site of perforation : (Stomach/duodenumI/II/III/Iv/small/large intestine)

Size of perforation:

Peritoneal fluid amount : litres

Nature(clear/bilious/purulent/feculent)

Flakes : Present / absent

Culture : sent/not sent

Biopsy : sent/no sent

Lavage : given/not given (fluid: Amount:)

Drainage tube : kept/not kept (type : site:)

Closure of perforation:primary/omental patch

Closure of abdomen:mass/multi layer material

POSTOPERATIVE PERIOD

Findings

Abdomen become soft on

Bowel sound heard on

Ryle’s tube removal on

Oral fluid started on

Discharge from the main wound till

Abdomen distension till

Diarrhoea

Drainange till

Drain wound infection

I V fluids Antibiotics

COMPLICATIONS

Febrile episodes

Abdominal distension

Paralytic ileus

Wound infection

Wound dehiscence

Wound gaping

Respiratory complications

Septicemia

Death

UPPER GI ENDOSCOPY

	NAME	AGE yrs	SEX	IP No	SE status	Alcohol	Smoking	NSAIDS	Pain	Distention	Guarding	Rigidity	Liver dullness obliteration	Time	Duration hrs	Pulse	B.P.
1	Thamusamy	50	M	889334	L	Y	Y	N	Y	Y	Y	Y	Y	M	7	Tachycardia	Normal
2	Kumar	28	M	889783	L	N	Y	Y	Y	Y	Y	Y	Y	M	12	Tachycardia	Normal
3	Murugesan	35	M	889820	L	Y	Y	N	Y	Y	Y	Y	Y	NT	6	Tachycardia	Normal
4	Prakash	25	F	891264	L	N	N	Y	Y	Y	Y	Y	Y	NT	24	Tachycardia	Normal
5	Tamilselvi	45	F	890152	L	N	N	Y	Y	N	Y	Y	Y	T	9	Normal	Normal
6	Muthusamy	55	M	891766	L	Y	Y	N	Y	Y	Y	Y	Y	M	7	Tachycardia	Normal
7	Chinaiyan	50	M	905164	L	Y	Y	Y	Y	N	Y	Y	Y	M	8	Tachycardia	Normal
8	Dharman	40	M	907101	L	N	Y	N	Y	Y	Y	Y	Y	M	10	Normal	Normal
9	Saravanan	22	M	907262	L	N	Y	Y	Y	Y	N	Y	Y	M	18	Tachycardia	Hypotension
10	Balakrishnan	50	M	906213	L	Y	Y	N	Y	Y	Y	Y	Y	M	4	Tachycardia	Normal
11	Marimuthu	47	M	907376	L	N	N	Y	Y	Y	Y	Y	N	M	7	Tachycardia	Normal
12	Vijaya	36	F	907340	L	N	N	Y	Y	Y	N	Y	Y	NT	8	Tachycardia	Normal
13	Poosanam	50	M	907714	L	N	Y	Y	Y	N	Y	Y	Y	E	7	Tachycardia	Normal
14	Samidurai	30	M	909678	L	Y	Y	N	Y	Y	Y	Y	Y	M	9	Tachycardia	Normal
15	Pandiyan	60	M	909762	L	N	Y	N	Y	Y	Y	Y	Y	M	10	Normal	Normal
16	Marimuthu	40	M	910857	L	Y	Y	N	Y	Y	Y	Y	Y	E	2 days	Tachycardia	Hypotension
17	Ponnusamy	55	M	911456	L	Y	N	N	Y	Y	Y	Y	Y	E	12	Tachycardia	Normal
18	Ramachandran	40	M	911572	L	Y	Y	Y	Y	N	N	Y	Y	E	24	Tachycardia	Normal
19	Shankar	55	M	911770	L	Y	Y	N	Y	Y	Y	Y	Y	NT	12	Normal	Normal
20	Acchan	46	M	912048	L	N	N	Y	Y	N	Y	Y	Y	NT	3 days	Tachycardia	Hypotension
21	Elancheliyan	50	M	912190	L	N	Y	Y	Y	Y	Y	Y	Y	NT	8	Tachycardia	Normal
22	Rangarajan	36	M	912321	L	N	N	Y	Y	Y	Y	Y	N	M	8	Tachycardia	Normal
23	Thangaraj	45	M	912934	L	Y	Y	N	Y	Y	Y	Y	Y	M	10	Tachycardia	Normal
24	Mahalingam	50	M	912949	L	N	Y	Y	Y	Y	Y	Y	Y	M	7	Tachycardia	Normal
25	Sakthivel	50	M	913575	L	Y	N	Y	Y	Y	Y	Y	Y	E	7	Tachycardia	Hypotension

	NAME	AGE yrs	SEX	IP No	SE status	Alcohol	Smoking	NSAIDS	Pain	Distention	Guarding	Rigidity	Liver dullness obliteration	Time	Duration hrs	Pulse	B.P.
26	Kaliyamoothy	60	M	913563	L	N	N	Y	Y	N	Y	Y	Y	E	12	Tachycardia	Hypotension
27	Pakirisamy	45	M	914005	L	Y	Y	N	Y	Y	Y	Y	Y	E	2 days	Normal	Normal
28	Ganesan	40	M	913959	L	N	N	Y	Y	N	Y	Y	Y	A	10	Tachycardia	Normal
29	Karupiah	45	M	914110	L	Y	Y	Y	Y	Y	Y	Y	N	E	2 days	Tachycardia	Normal
30	Mani	40	M	914120	L	N	Y	Y	Y	Y	Y	Y	Y	A	2 days	Tachycardia	Normal
31	Cheperumal	45	M	914274	L	Y	Y	N	Y	Y	Y	Y	Y	M	18	Tachycardia	Normal
32	Kumarasamy	40	M	914413	L	N	N	Y	Y	Y	Y	Y	Y	M	10	Tachycardia	Normal
33	Raja	20	M	914330	L	N	Y	Y	Y	N	N	Y	Y	M	18	Tachycardia	Hypotension
34	Lakshman	50	M	914537	L	Y	Y	N	Y	Y	Y	Y	Y	NT	8	Tachycardia	Normal
35	Rathinam	70	M	914650	L	N	N	Y	Y	N	Y	Y	Y	M	8	Tachycardia	Normal
36	Saravanan	29	M	914665	L	Y	N	Y	Y	Y	Y	Y	Y	NT	10	Tachycardia	Normal
37	Sokkalingam	52	M	914752	L	N	N	Y	Y	Y	Y	Y	N	M	12	Normal	Normal
38	Boomathi	45	F	914876	L	N	N	Y	Y	N	Y	Y	Y	NT	24	Tachycardia	Normal
39	Gopal	46	M	914889	L	Y	Y	N	Y	Y	Y	Y	Y	E	18	Tachycardia	Normal
40	Mahalingam	42	M	915082	L	Y	N	Y	Y	Y	Y	Y	Y	E	18	Tachycardia	Normal
41	Mthiyalagan	30	M	915319	L	N	N	Y	Y	Y	Y	Y	Y	M	2 days	Tachycardia	Normal
42	Gopal	70	M	915382	L	N	N	Y	Y	N	N	Y	Y	M	24	Tachycardia	Normal
43	Durairaj	65	M	915390	L	Y	N	Y	Y	Y	Y	Y	Y	A	6	Tachycardia	Hypotension
44	Pandiraj	20	M	915471	L	N	N	Y	Y	N	Y	Y	Y	E	10	Tachycardia	Normal
45	Muthu	21	M	915501	L	N	N	Y	Y	Y	Y	Y	N	A	12	Normal	Normal
46	Govindaraj	55	M	915602	L	Y	Y	N	Y	Y	Y	Y	Y	M	4	Tachycardia	Normal
47	Manivel	45	M	915843	L	Y	Y	Y	Y	N	Y	Y	Y	M	18	Tachycardia	Normal
48	Chitra	45	F	913346	L	N	N	N	Y	Y	Y	Y	Y	M	12	Normal	Normal
49	Thangappan	65	M	916431	L	N	Y	Y	Y	Y	Y	Y	Y	M	3 days	Tachycardia	Normal
50	Prakash	33	M	916195	L	Y	Y	N	Y	N	Y	Y	Y	M	5	Tachycardia	Normal

	NAME	AGE yrs	SEX	IP No	SE status	Alcohol	Smoking	NSAIDS	Pain	Distention	Guarding	Rigidity	Liver dullness obliteration	Time	Duration hrs	Pulse	B.P.
51	Mallian	45	M	916856	L	Y	Y	Y	Y	Y	Y	Y	Y	NT	6	Normal	Normal
52	Richard	25	M	916876	L	Y	Y	Y	Y	Y	Y	Y	Y	NT	12	Tachycardia	Normal
53	Veeraiyan	60	M	917262	L	Y	N	Y	Y	Y	Y	Y	Y	A	24	Tachycardia	Normal
54	Mahalingam	60	M	917219	L	Y	N	Y	Y	N	Y	Y	Y	A	2 days	Tachycardia	Normal
55	Madiyalagan	30	M	917356	L	Y	N	Y	Y	N	Y	Y	Y	NT	3 days	Tachycardia	Normal
56	Kannan	60	M	917403	L	Y	Y	N	Y	N	Y	Y	Y	NT	18	Normal	Normal
57	Rani	40	F	917578	L	N	N	Y	Y	Y	Y	Y	N	M	8	Tachycardia	Hypotension
58	David	22	M	917546	L	Y	N	N	Y	Y	Y	Y	N	M	6	Tachycardia	
59	Raja	40	M	916653	L	N	Y	N	Y	Y	Y	Y	Y	E	24	Tachycardia	Normal
60	Periasamy	65	M	917938	L	Y	Y	N	Y	Y	N	Y	Y	E	12	Tachycardia	Normal
61	Palanisamy	40	M	918034	L	Y	Y	N	Y	Y	N	Y	Y	M	6	Tachycardia	Normal
62	Mohandass	24	M	918007	L	Y	Y	N	Y	N	Y	Y	Y	M	2	Normal	Normal
63	Ashok	18	M	917953	L	Y	Y	N	Y	N	Y	Y	Y	A	3 days	Tachycardia	Normal
64	Manthiram	45	M	918184	L	N	N	Y	Y	N	Y	Y	Y	NT	24	Tachycardia	Normal
65	Chandran	27	M	918190	L	Y	N	Y	Y	N	Y	Y	Y	NT	12	Normal	Normal
66	Palaniappan	65	M	918386	L	Y	N	Y	Y	Y	Y	Y	N	M	18	Normal	Normal
67	Natarajan	45	M	918854	L	Y	Y	Y	Y	N	Y	Y	Y	M	24	Tachycardia	Normal
68	Muniyandi	49	M	918949	L	Y	Y	Y	Y	Y	Y	Y	Y	NT	2 days	Tachycardia	Normal
69	Mathiyalagan	35	M	918867	L	Y	Y	Y	Y	N	Y	Y	Y	M	2 days	Tachycardia	Normal
70	Murugan	33	M	919990	L	Y	N	N	Y	Y	Y	Y	Y	E	24	Tachycardia	Normal
71	Thangam	47	M	919962	L	N	N	N	Y	N	N	Y	Y	A	18	Tachycardia	Normal
72	Mookaiya	50	M	920016	L	N	Y	Y	Y	Y	Y	Y	Y	E	3 days	Tachycardia	Normal
73	Vadivelu	25	M	919058	L	Y	N	Y	Y	Y	Y	Y	Y	E	18	Normal	Normal
74	Raman	49	M	919033	L	Y	Y	Y	Y	Y	Y	Y	Y	NT	6	Tachycardia	Normal
75	Samiyayya	58	M	919075	L	N	Y	N	Y	Y	Y	Y	Y	NT	12	Tachycardia	Hypotension

	NAME	AGE yrs	SEX	IP No	SE status	Alcohol	Smoking	NSAIDS	Pain	Distention	Guarding	Rigidity	Liver dullness obliteration	Time	Duration hrs	Pulse	B.P.
76	Rengasamy	55	M	919205	L	N	N	N	Y	Y	Y	Y	Y	M	24	Tachycardia	Normal
77	Murugesan	27	M	919347	L	N	N	N	Y	N	Y	Y	Y	M	2 days	Tachycardia	Normal
78	Manickam	50	M	919545	L	Y	Y	N	Y	N	Y	Y	Y	M	18	Tachycardia	Normal
79	Kaliyamoothy	35	M	919887	L	Y	Y	Y	Y	Y	Y	Y	Y	NT	24	Normal	Normal
80	Kamatchi	49	F	920173	L	Y	Y	Y	Y	N	N	Y	Y	NT	12	Tachycardia	Normal
81	Rahman	37	M	920339	L	Y	N	Y	Y	Y	Y	Y	N	E	18	Normal	Normal
82	Muthu	40	M	920448	L	N	N	Y	Y	Y	Y	Y	Y	E	2 days	Tachycardia	Normal
83	Pakirisamy	52	M	920801	L	N	Y	Y	Y	N	Y	N	N	A	2 days	Tachycardia	Normal
84	Thangadurai	23	M	921105	L	N	Y	Y	Y	N	Y	Y	Y	A	5	Normal	Normal
85	Sundar	32	M	921110	L	N	Y	Y	Y	N	Y	Y	Y	E	12	Tachycardia	Normal
86	Soliammal	50	F	921336	L	N	Y	Y	Y	N	Y	Y	Y	A	14	Tachycardia	Hypotension
87	Kannaki	55	F	921504	L	Y	N	Y	Y	Y	Y	Y	Y	A	24	Tachycardia	Normal
88	Veerapan	30	M	920251	L	Y	Y	Y	Y	Y	Y	Y	Y	NT	18	Tachycardia	Normal
89	Ulaganathan	50	M	921994	L	Y	Y	Y	Y	Y	Y	Y	Y	NT	12	Normal	Normal
90	Elavarasan	52	M	922139	L	Y	N	N	Y	Y	Y	Y	Y	M	16	Tachycardia	Normal
91	Kaliyaperumal	58	M	922038	L	Y	N	N	Y	N	Y	Y	Y	M	2 days	Tachycardia	Normal
92	Selvam	30	M	922291	L	Y	Y	N	Y	N	Y	Y	N	M	12	Tachycardia	Normal
93	Sivan	54	M	922179	L	Y	Y	Y	Y	Y	Y	Y	Y	M	2 days	Tachycardia	Normal
94	Karupiah	60	M	922421	L	Y	Y	Y	Y	Y	Y	Y	Y	M	18	Normal	Normal
95	Dharmaraj	45	M	922436	L	Y	N	Y	Y	Y	Y	Y	Y	M	18	Normal	Normal
96	Mavali	65	M	922542	L	N	N	Y	Y	Y	Y	Y	Y	M	2 days	Tachycardia	Normal
97	Panner	35	M	922698	L	Y	N	Y	Y	Y	Y	Y	Y	M	3 days	Tachycardia	Hypotension
98	Karupiah	65	M	922708	L	N	N	Y	Y	N	Y	Y	Y	M	12	Tachycardia	Normal
99	Mahalingam	40	M	922816	L	N	Y	N	Y	N	Y	Y	Y	M	12	Tachycardia	Normal
100	Palani	39	M	922991	L	N	Y	N	Y	N	N	Y	Y	M	24	Tachycardia	Normal

	NAME	AGE yrs	SEX	IP No	SE status	Alcohol	Smoking	NSAIDS	Pain	Distention	Guarding	Rigidity	Liver dullness obliteration	Time	Duration hrs	Pulse	B.P.
101	Anbuselvam	35	M	923009	L	Y	Y	N	Y	Y	N	Y	Y	NT	18	Tachycardia	Normal
102	Shanmugam	35	M	923995	L	Y	Y	Y	Y	Y	Y	Y	Y	NT	18	Tachycardia	Normal
103	Chinnadurai	77	M	923941	L	Y	Y	Y	Y	Y	Y	Y	Y	A	5	Tachycardia	Normal
104	Rajan	55	M	924965	L	Y	Y	Y	Y	Y	Y	Y	Y	E	12	Tachycardia	Normal
105	Selvam	46	M	925253	L	Y	N	N	Y	Y	Y	Y	Y	E	24	Normal	Normal
106	Vadivelu	55	M	925672	L	Y	N	Y	Y	Y	Y	Y	N	NT	2 days	Tachycardia	Normal
107	Prakash	16	M	925633	L	Y	N	Y	Y	Y	Y	Y	Y	NT	12	Tachycardia	Normal
108	Ponnusamy	45	M	925829	L	Y	N	Y	Y	Y	Y	Y	Y	M	18	Tachycardia	Normal
109	Prabhu	21	M	925913	L	Y	Y	Y	Y	Y	Y	Y	Y	M	2 days	Tachycardia	Hypotension
110	Tamilarasan	22	M	925886	L	Y	Y	Y	Y	Y	Y	Y	Y	E	2 days	Tachycardia	Normal
111	Marimuthu	58	M	925896	L	N	Y	Y	Y	Y	Y	Y	Y	E	18	Normal	Normal
112	Devendran	22	M	925963	L	N	N	N	Y	Y	Y	Y	Y	E	24	Tachycardia	Normal
113	Muthu	55	M	926028	L	N	N	N	Y	Y	Y	Y	Y	NT	12	Normal	Normal
114	Palraj	28	M	926480	L	N	N	N	Y	Y	Y	Y	Y	NT	2 days	Tachycardia	Normal
115	Ulaganathan	50	M	926880	L	Y	Y	N	Y	N	Y	Y	Y	A	18	Tachycardia	Hypotension
116	Perumal	55	M	927003	L	Y	Y	N	Y	N	N	Y	Y	M	24	Tachycardia	Normal
117	Krishnan	33	M	927353	L	Y	N	Y	Y	N	N	Y	Y	M	3 days	Tachycardia	Normal
118	Punnimorthy	41	M	928199	L	N	N	Y	Y	Y	Y	Y	Y	M	18	Tachycardia	Normal
119	Thangamani	36	M	929283	L	Y	Y	Y	Y	Y	Y	Y	Y	A	12	Tachycardia	Normal
120	Nagalingam	53	M	929643	L	N	Y	Y	Y	Y	N	Y	Y	M	24	Tachycardia	Normal
121	Chinnathal	70	F	947091	L	N	Y	Y	Y	Y	Y	Y	Y	M	12	Tachycardia	Normal
122	Murugesan	38	M	949149	L	Y	Y	Y	Y	N	Y	Y	Y	A	2 days	Tachycardia	Normal
123	Sivalingam	70	M	949647	L	Y	N	Y	Y	Y	Y	Y	N	M	2 days	Tachycardia	Normal
124	Subramani	45	M	950567	L	Y	N	Y	Y	Y	Y	Y	Y	M	3 days	Tachycardia	Hypotension
125	Sevvanthi	60	F	950753	L	N	N	Y	Y	N	Y	Y	Y	M	12	Normal	Normal

	NAME	AGE yrs	SEX	IP No	SE status	Alcohol	Smoking	NSAIDS	Pain	Distention	Guarding	Rigidity	Liver dullness obliteration	Time	Duration hrs	Pulse	B.P.
126	Rajesh	23	M	951886	L	Y	Y	Y	Y	Y	Y	Y	N	NT	18	Normal	Normal
127	Thangarasu	55	M	952080	L	Y	Y	N	Y	Y	Y	Y	Y	NT	6	Tachycardia	Normal
128	Samyayya	60	M	952351	L	Y	Y	N	Y	Y	Y	Y	Y	NT	24	Tachycardia	Normal
129	Aruldass	35	M	957758	L	Y	Y	N	Y	Y	Y	Y	Y	NT	2 days	Tachycardia	Normal
130	Suyam	55	M	958017	L	N	N	Y	Y	Y	Y	Y	Y	M	18	Tachycardia	Normal
131	Parthasarathi	22	M	959455	L	N	N	Y	Y	Y	Y	Y	Y	M	14	Tachycardia	Normal
132	Mathiyalagan	45	M	959655	L	N	N	Y	Y	Y	Y	Y	Y	M	12	Tachycardia	Hypotension
133	Ravi	40	M	960152	L	N	N	Y	Y	Y	Y	Y	Y	M	24	Normal	Normal
134	Periasamy	48	M	961045	L	N	Y	Y	Y	N	Y	Y	Y	M	2 days	Tachycardia	Normal
135	Murugan	23	M	961318	L	Y	Y	Y	Y	N	Y	Y	Y	M	2 days	Tachycardia	Normal
136	Mohamad	45	M	962198	L	Y	Y	N	Y	Y	N	Y	Y	M	3 days	Tachycardia	Normal
137	Ruban	21	M	962309	L	Y	Y	N	Y	Y	Y	Y	N	A	24	Tachycardia	Normal
138	Palaniyandi	73	M	962763	L	Y	Y	N	Y	Y	Y	Y	Y	E	24	Tachycardia	Normal
139	Baskar	58	M	962849	L	Y	Y	N	Y	Y	N	Y	Y	A	12	Tachycardia	Normal
140	Veerapan	60	M	963013	L	Y	Y	Y	Y	Y	Y	Y	Y	A	18	Tachycardia	Hypotension
141	Valli	55	F	963268	L	Y	N	N	Y	N	N	Y	Y	NT	12	Normal	Normal
142	Mohamed	40	M	963315	L	Y	N	Y	Y	Y	Y	Y	Y	NT	24	Tachycardia	Hypotension
143	Junaithu	67	M	963737	L	N	N	Y	Y	Y	Y	Y	Y	M	18	Tachycardia	Normal
144	Velmurugan	35	M	964140	L	N	Y	N	Y	Y	Y	Y	Y	M	18	Tachycardia	Normal
145	Rmalingam	65	M	964661	L	Y	Y	N	Y	N	Y	Y	Y	M	12	Tachycardia	Normal
146	Kaliyaperumal	60	M	964714	L	N	Y	N	Y	Y	Y	Y	Y	A	5	Tachycardia	Normal
147	Idumban	55	M	964778	L	N	N	Y	Y	Y	Y	Y	Y	A	2 days	Tachycardia	Normal
148	Subramani	30	M	964945	L	N	N	Y	Y	Y	Y	Y	Y	E	4 days	Tachycardia	Normal
149	Mathavan	35	M	964997	L	N	N	Y	Y	Y	Y	Y	Y	NT	8	Tachycardia	Normal
150	Valavan	40	M	966447	L	N	Y	Y	Y	Y	Y	Y	Y	NT	10	Tachycardia	Normal

	NAME	AGE yrs	SEX	IP No	SE status	Alcohol	Smoking	NSAIDS	Pain	Distention	Guarding	Rigidity	Liver dullness obliteration	Time	Duration hrs	Pulse	B.P.
151	Ramalingam	40	M	965752	L	N	Y	Y	Y	N	Y	Y	Y	M	12	Tachycardia	Normal
152	Venkatesan	30	M	965776	L	Y	Y	N	Y	Y	Y	Y	Y	M	18	Tachycardia	Normal
153	Chinnaiyan	60	M	965950	L	Y	Y	N	Y	Y	Y	Y	Y	M	24	Tachycardia	Normal
154	Senkam	41	M	965997	L	Y	Y	N	Y	Y	Y	Y	Y	M	2 days	Tachycardia	Normal
155	Karupiah	50	M	965838	L	Y	Y	N	Y	Y	Y	Y	Y	M	2 days	Normal	Normal
156	Marimuthu	26	M	965911	L	N	N	N	Y	Y	N	Y	Y	E	12	Tachycardia	Normal
157	Nagalakshmi	25	F	966164	L	N	N	Y	Y	Y	Y	Y	Y	A	24	Tachycardia	Normal
158	Raju	23	M	966161	L	N	N	Y	Y	Y	Y	Y	Y	A	3 days	Tachycardia	Normal
159	Amirjan	48	M	966462	L	N	N	Y	Y	N	Y	Y	Y	A	18	Tachycardia	Normal
160	Gunasekar	17	M	966704	L	N	Y	N	Y	Y	Y	Y	Y	NT	12	Normal	Hypotension
161	Prakash	16	M	966655	L	Y	Y	N	Y	Y	Y	Y	Y	NT	24	Tachycardia	Normal
162	Elangovan	28	M	967063	L	Y	Y	Y	Y	Y	Y	Y	Y	NT	24	Tachycardia	Normal
163	Nagammal	50	F	967542	L	Y	Y	Y	Y	Y	Y	Y	Y	NT	12	Tachycardia	Normal
164	Shankar	30	M	967368	L	Y	N	Y	Y	Y	N	Y	Y	M	18	Tachycardia	Normal
165	Murugesan	40	M	967621	L	Y	Y	Y	Y	N	Y	Y	Y	M	2 days	Tachycardia	Normal
166	Arumugam	50	M	967657	L	Y	Y	N	Y	Y	Y	Y	Y	M	12	Tachycardia	Normal
167	Settu	58	M	967958	L	Y	N	N	Y	N	Y	Y	N	NT	2 days	Tachycardia	Normal
168	Natarajan	45	M	968152	L	Y	N	N	Y	N	Y	Y	Y	NT	2 days	Tachycardia	Normal
169	Jayakumar	35	M	968315	L	Y	N	N	Y	N	Y	Y	Y	NT	12	Normal	Hypotension
170	Selvaraj	59	M	968357	L	Y	Y	Y	Y	Y	Y	Y	N	NT	24	Tachycardia	Normal
171	Vaduganathan	55	M	968462	L	N	Y	Y	Y	Y	Y	Y	Y	NT	18	Normal	Normal
172	Revathy	22	F	968573	L	Y	Y	Y	Y	Y	Y	Y	Y	NT	18	Tachycardia	Normal
173	Manoharan	17	M	969452	L	N	Y	Y	Y	Y	Y	Y	Y	M	12	Normal	Normal
174	Ramiah	65	M	969863	L	N	N	Y	Y	N	Y	Y	Y	M	2 days	Normal	Normal
175	Panchanathan	50	M	969985	L	Y	N	Y	Y	N	Y	Y	Y	M	3 days	Tachycardia	Normal

	NAME	AGE yrs	SEX	IP No	SE status	Alcohol	Smoking	NSAIDS	Pain	Distention	Guarding	Rigidity	Liver dullness obliteration	Time	Duration hrs	Pulse	B.P.
176	Ayyavu	55	M	970183	L	N	N	Y	Y	N	Y	Y	Y	M	18	Tachycardia	Normal
177	Mathiyalagan	30	M	970149	L	Y	N	N	Y	N	Y	Y	Y	M	2 days	Tachycardia	Hypotension
178	Kuthaian	55	M	970265	L	Y	Y	N	Y	Y	Y	Y	Y	M	4	Tachycardia	Normal
179	Gunasekar	45	M	970347	L	Y	Y	N	Y	Y	N	Y	Y	NT	8	Tachycardia	Normal
180	Kaliyaperumal	62	M	970573	L	Y	Y	Y	Y	Y	Y	Y	Y	NT	12	Tachycardia	Normal
181	Balakrishnan	30	M	971042	L	N	Y	Y	Y	Y	Y	Y	Y	NT	24	Tachycardia	Normal
182	Rajendran	40	M	971013	L	N	Y	Y	Y	Y	Y	Y	Y	E	2 days	Tachycardia	Normal
183	Raja	69	M	971541	L	N	Y	Y	Y	Y	N	Y	Y	A	14	Tachycardia	Normal
184	Suresh	22	M	971570	L	Y	Y	N	Y	Y	Y	Y	Y	A	7	Tachycardia	Normal
185	Amudha	35	F	972447	L	Y	N	N	Y	Y	Y	Y	Y	NT	24	Tachycardia	Normal
186	Rajan	35	M	972715	L	Y	N	N	Y	Y	Y	Y	Y	E	2 days	Tachycardia	Normal
187	Ramesh	13	M	972659	L	Y	Y	Y	Y	N	Y	Y	Y	M	6	Normal	Normal
188	Kubendiran	27	M	973759	L	Y	Y	Y	Y	N	Y	Y	Y	M	12	Tachycardia	Normal
189	Kaliyaperumal	45	M	973759	L	N	Y	Y	Y	N	N	Y	Y	E	4 days	Tachycardia	Hypotension
190	Ganesan	35	M	973747	L	N	N	Y	Y	Y	Y	Y	N	E	5 days	Tachycardia	Normal
191	Maliyappan	51	M	973845	L	Y	Y	Y	Y	N	Y	Y	Y	NT	10	Tachycardia	Normal
192	Anadhan	40	M	974589	L	Y	Y	N	Y	Y	Y	Y	Y	NT	24	Tachycardia	Normal
193	Karunan	49	M	975172	L	Y	N	N	Y	N	Y	Y	Y	M	12	Tachycardia	Normal
194	Rasaiya	59	M	975177	L	N	N	N	Y	N	Y	Y	Y	M	6	Tachycardia	Normal
195	Rengasamy	30	M	975246	L	N	Y	Y	Y	Y	Y	Y	Y	M	12	Tachycardia	Hypotension
196	Sivakumar	28	M	975208	L	Y	Y	Y	Y	Y	Y	Y	Y	M	24	Tachycardia	Normal
197	Abdul	48	M	975475	L	Y	Y	Y	Y	N	Y	Y	Y	E	2 days	Tachycardia	Normal
198	Panjan	43	M	975651	L	N	Y	N	Y	N	Y	Y	Y	A	5	Tachycardia	Normal
199	Manickam	65	M	975668	L	Y	Y	N	Y	Y	Y	Y	Y	M	6	Tachycardia	Normal
200	Kaliyaperumal	60	M	976291	L	Y	Y	N	Y	Y	Y	Y	Y	A	12	Tachycardia	Normal

	NAME	Dehydration	Air under diaphragm	RFT	IVF	Antibiotics	Anaes	Incision	Perforation cms	Live Omental patch	B.S day	R.T removal	D.T removal	Complication	Follow up
1	Thamusamy	Y	Y	Normal	Y	C,M	GA	ML	0.5	+	4	5	5	-	Good
2	Kumar	Y	Y	Normal	Y	C,M	GA	ML	0.8	+	3	4	5	-	Good
3	Murugesan	Y	Y	Normal	Y	C,M	GA	ML	0.3	+	3	4	5	-	Good
4	Prakash	Y	Y	Normal	Y	C,M	GA	ML	0.5	+	5	6	6	-	Good
5	Tamilselvi	N	Y	Elevated	Y	C,M	GA	ML	0.5	+	3	4	5	W. infection	Good
6	Muthusamy	Y	Y	Normal	Y	C,M	GA	ML	0.8	+	4	5	5	-	Good
7	Chinaiyan	Y	Y	Normal	Y	C,M	GA	ML	0.5	+	3	4	5	-	Good
8	Dharman	Y	Y	Elevated	Y	C,M	GA	ML	0.8	+	3	4	5	-	Good
9	Saravanan	Y	Y	Normal	Y	C,M	EA	ML	0.8	+	3	4	5	-	Good
10	Balakrishnan	Y	Y	Normal	Y	C,M	GA	ML	1.2	+	4	5	5	-	Good
11	Marimuthu	Y	Y	Elevated	Y	C,M	GA	ML	0.6	+	3	4	5	-	Good
12	Vijaya	Y	Y	Elevated	Y	C,M	GA	ML	0.8	+	-	-	-	-	Died
13	Poosanam	Y	Y	Normal	Y	C,M	GA	ML	0.5	+	3	4	5	-	Good
14	Samidurai	Y	Y	Normal	Y	C,M	GA	ML	0.7	+	3	4	5	-	Good
15	Pandiyan	Y	Y	Elevated	Y	C,M	GA	ML	0.3	+	4	5	5	-	Good
16	Marimuthu	N	Y	Elevated	Y	-	-	-	-	-	-	-	-	-	Died
17	Ponnusamy	Y	Y	Normal	Y	C,M	EA	ML	0.5	+	3	4	5	-	Good
18	Ramachandran	N	Y	Normal	Y	C,M	GA	ML	0.5	+	4	5	5	-	Good
19	Shankar	Y	Y	Normal	Y	C,M	GA	ML	0.5	+	4	5	5	-	Good
20	Acchan	Y	Y	Normal	Y	C,M	GA	ML	0.8	+	5	6	6	W.gaping	Incisional hernia
21	Elancheliyan	Y	Y	Elevated	Y	C,M	GA	ML	0.5	+	-	-	-	-	Died
22	Rangarajan	Y	Y	Normal	Y	C,M	EA	ML	0.3	+	4	5	5	-	Good
23	Thangaraj	Y	Y	Normal	Y	C,M	GA	ML	0.8	+	3	4	5	-	Good
24	Mahalingam	N	Y	Normal	Y	C,M	GA	ML	0.8	+	3	4	5	-	Good
25	Sakthivel	Y	Y	Normal	Y	C,M	GA	ML	0.3	+	4	5	5	-	Good

	NAME	Dehydration	Air under diaphragm	RFT	IVF	Antibiotics	Anaes	Incision	Perforation cms	Live Omental patch	B.S day	R.T removal	D.T removal	Complication	Follow up
26	Kaliyamoothy	Y	Y	Elevated	Y	-	-	-	-	-	-	-	-	-	Died
27	Pakirisamy	Y	Y	Normal	Y	C,M	GA	ML	2	+	4	5	5	-	Good
28	Ganesan	Y	Y	Normal	Y	C,M	GA	ML	0.8	+	5	6	6	W. infection	Secondary suturing
29	Karupiah	Y	Y	Normal	Y	C,M	GA	ML	0.3	+	3	4	5	-	Good
30	Mani	Y	Y	Normal	Y	C,M	GA	ML	0.5	+	4	5	5	-	Good
31	Cheperumal	N	Y	Normal	Y	C,M	GA	ML	0.8	+	5	6	6	-	Good
32	Kumarasamy	N	Y	Normal	Y	C,M	GA	ML	0.3	+	4	5	5	-	Good
33	Raja	Y	Y	Normal	Y	C,M	GA	ML	0.8	+	3	4	5	-	Good
34	Lakshman	Y	Y	Elevated	Y	C,M	GA	ML	1.5	+	-	-	-	-	Died
35	Rathinam	Y	Y	Normal	Y	C,M	GA	ML	0.5	+	3	4	5	-	Good
36	Saravanan	Y	Y	Normal	Y	C,M	GA	ML	1	+	4	5	5	-	Good
37	Sokkalingam	Y	Y	Normal	Y	C,M	GA	ML	0.5	+	3	4	5	-	Good
38	Boomathi	Y	Y	Normal	Y	C,M	EA	ML	1.5	+	5	6	6	-	Good
39	Gopal	Y	Y	Normal	Y	C,M	GA	ML	0.3	+	5	6	6	-	Good
40	Mahalingam	Y	Y	Normal	Y	C,M	GA	ML	0.5	+	4	5	5	-	Good
41	Mthiyalagan	Y	Y	Normal	Y	C,M	GA	ML	0.5	+	3	4	5	-	Good
42	Gopal	Y	Y	Normal	Y	C,M	GA	ML	0.8	+	3	4	5	-	Good
43	Durairaj	Y	Y	Elevated	Y	-	-	-	-	-	-	-	-	-	Died
44	Pandiraj	N	Y	Normal	Y	C,M	GA	ML	1.3	+	5	6	6	-	Good
45	Muthu	Y	Y	Normal	Y	C,M	GA	ML	0.3	+	4	5	5	-	Good
46	Govindaraj	Y	Y	Elevated	Y	C,M	EA	ML	0.8	+	3	4	5	-	Good
47	Manivel	Y	Y	Normal	Y	C,M	GA	ML	0.8	+	3	4	5	-	Good
48	Chitra	N	Y	Elevated	Y	C,M	GA	ML	0.5	+	4	5	5	-	Good
49	Thangappan	Y	Y	Normal	Y	C,M	GA	ML	0.8	+	3	4	5	-	Good
50	Prakash	Y	Y	Elevated	Y	C,M	GA	ML	2.3	+	-	-	-	-	Died

	NAME	Dehydration	Air under diaphragm	RFT	IVF	Antibiotics	Anaes	Incision	Perforation cms	Live Omental patch	B.S day	R.T removal	D.T removal	Complication	Follow up
51	Mallian	N	Y	Normal	Y	C,M	GA	ML	0.5	+	3	4	5	-	Good
52	Richard	Y	Y	Normal	Y	C,M	GA	ML	0.8	+	4	5	5	-	Good
53	Veeraiyan	N	Y	Normal	Y	C,M	GA	ML	0.5	+	4	5	5	-	Good
54	Mahalingam	Y	Y	Elevated	Y	C,M	GA	ML	0.3	+	3	4	5	W.gaping	Incisional hernia
55	Madiyalagan	N	Y	Elevated	Y	C,M	GA	ML	0.8	+	3	4	5	-	Good
56	Kannan	Y	Y	Normal	Y	C,M	GA	ML	0.3	+	5	6	6	-	Good
57	Rani	Y	Y	Elevated	Y	-	-	-	-	-	-	-	-	-	Died
58	David	Y	Y	Elevated	Y	C,M	GA	ML	1.3	+	5	6	6	-	Good
59	Raja	Y	Y	Normal	Y	C,M	GA	ML	0.5	+	4	5	5	-	Good
60	Periasamy	Y	Y	Normal	Y	C,M	GA	ML	0.8	+	3	4	5	-	Good
61	Palanisamy	Y	Y	Normal	Y	C,M	GA	ML	0.3	+	4	5	5	-	Good
62	Mohandass	N	Y	Normal	Y	C,M	GA	ML	0.8	+	4	5	5	-	Good
63	Ashok	Y	Y	Elevated	Y	C,M	GA	ML	1.5	+	5	6	6	-	Good
64	Manthiram	Y	Y	Normal	Y	C,M	GA	ML	0.5	+	3	4	5	-	Good
65	Chandran	Y	Y	Normal	Y	C,M	GA	ML	0.3	+	4	5	5	-	Good
66	Palaniappan	Y	Y	Normal	Y	C,M	GA	ML	0.5	+	4	5	5	-	Good
67	Natarajan	Y	Y	Normal	Y	C,M	GA	ML	0.8	+	5	6	6	W.gaping	Secondary suturing
68	Muniyandi	Y	Y	Elevated	Y	C,M	GA	ML	1.2	+	3	4	5	-	Good
69	Mathiyalagan	Y	Y	Normal	Y	C,M	GA	ML	0.5	+	3	4	5	-	Good
70	Murugan	Y	Y	Normal	Y	C,M	GA	ML	1.2	+	-	-	-	-	Died
71	Thangam	Y	Y	Elevated	Y	C,M	GA	ML	1.3	+	4	5	5	-	Good
72	Mookaiya	Y	Y	Normal	Y	C,M	EA	ML	0.5	+	4	5	5	-	Good
73	Vadivelu	Y	Y	Normal	Y	C,M	GA	ML	0.3	+	4	5	5	W. infection	Secondary suturing
74	Raman	Y	Y	Normal	Y	C,M	GA	ML	0.5	+	3	4	5	-	Good
75	Samiyayya	Y	Y	Normal	Y	-	-	-	-	-	-	-	-	-	Died

	NAME	Dehydration	Air under diaphragm	RFT	IVF	Antibiotics	Anaes	Incision	Perforation cms	Live Omental patch	B.S day	R.T removal	D.T removal	Complication	Follow up
76	Rengasamy	Y	Y	Elevated	Y	C,M	GA	ML	0.8	+	4	5	5	-	Good
77	Murugesan	N	Y	Normal	Y	C,M	GA	ML	0.3	+	5	6	6	-	Good
78	Manickam	N	Y	Elevated	Y	C,M	GA	ML	0.5	+	4	5	5	-	Good
79	Kaliyamoothy	Y	Y	Normal	Y	C,M	GA	ML	1.5	+	3	4	5	-	Good
80	Kamatchi	Y	Y	Normal	Y	C,M	GA	ML	0.5	+	3	4	5	-	Good
81	Rahman	Y	Y	Normal	Y	C,M	GA	ML	0.3	+	5	6	6	-	Good
82	Muthu	Y	Y	Elevated	Y	C,M	EA	ML	0.5	+	4	5	5	-	Good
83	Pakirisamy	N	Y	Elevated	Y	C,M	GA	ML	0.5	+	5	6	6	-	Good
84	Thangadurai	Y	Y	Normal	Y	C,M	GA	ML	1.3	+	3	4	5	-	Good
85	Sundar	Y	Y	Normal	Y	C,M	GA	ML	0.8	+	3	4	5	-	Good
86	Soliammal	Y	Y	Normal	Y	C,M	GA	ML	0.5	+	4	5	5	-	Good
87	Kannaki	Y	Y	Normal	Y	C,M	GA	ML	2	+	5	6	6	-	Good
88	Veerapan	Y	Y	Normal	Y	C,M	GA	ML	0.5	+	-	-	-	-	Died
89	Ulaganathan	Y	Y	Elevated	Y	C,M	GA	ML	0.8	+	5	6	6	-	Good
90	Elavarasan	Y	Y	Normal	Y	C,M	GA	ML	0.5	+	4	5	5	-	Good
91	Kaliyaperumal	N	Y	Normal	Y	C,M	GA	ML	0.8	+	4	5	5	-	Good
92	Selvam	Y	Y	Normal	Y	C,M	EA	ML	0.5	+	3	4	5	-	Good
93	Sivan	Y	Y	Elevated	Y	C,M	GA	ML	0.3	+	3	4	5	-	Good
94	Karupiah	Y	Y	Normal	Y	C,M	GA	ML	0.5	+	5	6	6	W.gaping	Incisional hernia
95	Dharmaraj	Y	Y	Elevated	Y	C,M	GA	ML	1.3	+	4	5	5	-	Good
96	Mavali	Y	Y	Normal	Y	C,M	GA	ML	0.5	+	3	4	5	-	Good
97	Panner	Y	Y	Elevated	Y	-	-	-	-	-	-	-	-	-	Died
98	Karupiah	Y	Y	Elevated	Y	C,M	GA	ML	0.3	+	5	6	6	-	Good
99	Mahalingam	Y	Y	Normal	Y	C,M	GA	ML	0.3	+	4	5	5	-	Good
100	Palani	Y	Y	Normal	Y	C,M	GA	ML	0.5	+	3	4	5	-	Good

	NAME	Dehydration	Air under diaphragm	RFT	IVF	Antibiotics	Anaes	Incision	Perforation cms	Live Omental patch	B.S day	R.T removal	D.T removal	Complication	Follow up
101	Anbuselvam	Y	Y	Elevated	Y	C,M	GA	ML	0.3	+	4	5	5	-	Good
102	Shanmugam	Y	Y	Normal	Y	C,M	GA	ML	1	+	3	4	5	-	Good
103	Chinnadurai	Y	Y	Elevated	Y	C,M	GA	ML	0.5	+	4	5	5	-	Good
104	Rajan	Y	Y	Normal	Y	C,M	GA	ML	1.3	+	5	6	6	W. infection	Good
105	Selvam	Y	Y	Normal	Y	C,M	GA	ML	0.3	+	5	6	6	W.gaping	Incisional hernia
106	Vadivelu	Y	Y	Normal	Y	C,M	GA	ML	0.5	+	-	-	-	-	Died
107	Prakash	N	Y	Normal	Y	C,M	GA	ML	0.3	+	4	5	5	-	Good
108	Ponnusamy	N	Y	Normal	Y	C,M	GA	ML	1.3	+	4	5	5	-	Good
109	Prabhu	Y	Y	Normal	Y	C,M	GA	ML	0.5	+	3	4	5	-	Good
110	Tamilarasan	Y	Y	Elevated	Y	C,M	GA	ML	0.3	+	5	6	6	-	Good
111	Marimuthu	Y	Y	Normal	Y	C,M	EA	ML	0.8	+	5	6	6	-	Good
112	Devendran	Y	Y	Normal	Y	C,M	GA	ML	1	+	3	4	5	-	Good
113	Muthu	Y	Y	Normal	Y	C,M	GA	ML	0.5	+	4	5	5	-	Good
114	Palraj	Y	Y	Normal	Y	C,M	GA	ML	0.8	+	3	4	5	-	Good
115	Ulaganathan	Y	Y	Elevated	Y	-	-	-	-	-	-	-	-	-	Died
116	Perumal	Y	Y	Normal	Y	C,M	GA	ML	1.5	+	5	6	6	-	Good
117	Krishnan	N	Y	Normal	Y	C,M	GA	ML	0.5	+	4	5	5	-	Good
118	Punnimorthy	Y	Y	Normal	Y	C,M	GA	ML	1.3	+	-	-	-	-	Good
119	Thangamani	Y	Y	Normal	Y	C,M	GA	ML	0.3	+	4	5	5	-	Good
120	Nagalingam	Y	Y	Elevated	Y	C,M	GA	ML	0.8	+	5	6	6	-	Good
121	Chinnathal	Y	Y	Normal	Y	C,M	GA	ML	0.5	+	5	6	6	-	Good
122	Murugesan	Y	Y	Normal	Y	C,M	EA	ML	0.5	+	3	4	5	-	Good
123	Sivalingam	Y	Y	Elevated	Y	C,M	GA	ML	1.3	+	4	5	5	-	Good
124	Subramani	Y	Y	Elevated	Y	-	-	-	-	-	-	-	-	-	Died
125	Sevvanthi	Y	Y	Normal	Y	C,M	GA	ML	0.5	+	5	6	6	W. infection	Good

	NAME	Dehydration	Air under diaphragm	RFT	IVF	Antibiotics	Anaes	Incision	Perforation cms	Live Omental patch	B.S day	R.T removal	D.T removal	Complication	Follow up
126	Rajesh	Y	Y	Normal	Y	C,M	GA	ML	0.3	+	3	4	5	-	Good
127	Thangarasu	Y	Y	Normal	Y	C,M	GA	ML	0.5	+	4	5	5	-	Good
128	Samyayya	Y	Y	Normal	Y	C,M	GA	ML	0.5	+	3	4	5	-	Good
129	Aruldass	Y	Y	Elevated	Y	C,M	GA	ML	1.5	+	5	6	6	-	Good
130	Suyam	N	Y	Normal	Y	C,M	GA	ML	0.5	+	4	5	5	-	Good
131	Parthasarathi	Y	Y	Normal	Y	C,M	EA	ML	0.5	+	4	5	5	-	Good
132	Mathiyalagan	Y	Y	Elevated	Y	-	-	-	-	-	-	-	-	-	Died
133	Ravi	Y	Y	Normal	Y	C,M	GA	ML	0.5	+	3	4	5	-	Good
134	Periasamy	Y	Y	Normal	Y	C,M	GA	ML	0.5	+	4	5	5	-	Good
135	Murugan	Y	Y	Normal	Y	C,M	GA	ML	1.3	+	5	6	6	-	Good
136	Mohamad	Y	Y	Normal	Y	C,M	GA	ML	0.8	+	5	6	6	-	Good
137	Ruban	Y	Y	Normal	Y	C,M	GA	ML	0.3	+	4	5	5	-	Good
138	Palaniyandi	Y	Y	Normal	Y	C,M	GA	ML	0.5	+	5	6	6	-	Good
139	Baskar	Y	Y	Elevated	Y	C,M	GA	ML	0.8	+	3	4	5	-	Good
140	Veerapan	Y	Y	Normal	Y	C,M	GA	ML	0.5	+	6	7	6	-	Good
141	Valli	N	Y	Normal	Y	C,M	GA	ML	1.5	+	5	6	6	W. infection	Good
142	Mohamed	Y	Y	Elevated	Y	-	-	-	-	-	-	-	-	-	Died
143	Junaithu	Y	Y	Normal	Y	C,M	GA	ML	1.3	+	4	5	5	-	Good
144	Velmurugan	Y	Y	Normal	Y	C,M	GA	ML	0.5	+	5	4	5	-	Good
145	Rmalingam	Y	Y	Normal	Y	C,M	GA	ML	0.8	+	3	4	5	-	Good
146	Kaliyaperumal	Y	Y	Normal	Y	C,M	GA	ML	1.5	+	4	5	5	-	Good
147	Idumban	Y	Y	Elevated	Y	C,M	GA	ML	0.5	+	4	5	5	-	Good
148	Subramani	Y	Y	Normal	Y	C,M	GA	ML	0.8	+	4	5	5	-	Good
149	Mathavan	Y	Y	Normal	Y	C,M	GA	ML	0.3	+	5	6	6	-	Good
150	Valavan	Y	Y	Normal	Y	C,M	GA	ML	0.5	+	5	6	6	-	Good

	NAME	Dehydration	Air under diaphragm	RFT	IVF	Antibiotics	Anaes	Incision	Perforation cms	Live Omental patch	B.S day	R.T removal	D.T removal	Complication	Follow up
151	Ramalingam	Y	Y	Normal	Y	C,M	GA	ML	0.8	+	-	-	-	-	Died
152	Venkatesan	Y	Y	Normal	Y	C,M	GA	ML	0.5	+	4	5	5	-	Good
153	Chinnaiyan	Y	Y	Elevated	Y	C,M	GA	ML	1.3	+	5	6	6	-	Good
154	Senkam	Y	Y	Normal	Y	C,M	GA	ML	0.8	+	4	5	5	-	Good
155	Karupiah	Y	Y	Normal	Y	C,M	EA	ML	1.3	+	3	4	5	-	Good
156	Marimuthu	Y	Y	Normal	Y	C,M	GA	ML	0.5	+	3	4	5	-	Good
157	Nagalakshmi	Y	Y	Normal	Y	C,M	GA	ML	0.5	+	5	6	6	-	Good
158	Raju	Y	Y	Normal	Y	C,M	GA	ML	1.5	+	4	5	5	W. infection	Secondary suturing
159	Amirjan	Y	Y	Elevated	Y	C,M	GA	ML	0.5	+	5	6	6	-	Good
160	Gunasekar	N	Y	Elevated	Y	-	-	-	-	-	-	-	-	-	Died
161	Prakash	Y	Y	Normal	Y	C,M	GA	ML	0.8	+	3	4	5	-	Good
162	Elangovan	Y	Y	Normal	Y	C,M	GA	ML	0.5	+	5	6	6	-	Good
163	Nagammal	Y	Y	Normal	Y	C,M	GA	ML	0.8	+	4	5	5	-	Good
164	Shankar	Y	Y	Normal	Y	C,M	GA	ML	1.3	+	3	4	5	-	Good
165	Murugesan	Y	Y	Normal	Y	C,M	GA	ML	0.5	+	5	6	6	-	Good
166	Arumugam	Y	Y	Elevated	Y	C,M	GA	ML	0.8	+	4	5	5	-	Good
167	Settu	Y	Y	Normal	Y	C,M	GA	ML	1.3	+	5	6	6	-	Good
168	Natarajan	Y	Y	Normal	Y	C,M	GA	ML	0.5	+	3	4	5	-	Good
169	Jayakumar	Y	Y	Normal	Y	C,M	GA	ML	0.3	+	5	6	6	-	Good
170	Selvaraj	Y	Y	Normal	Y	C,M	GA	ML	1.5	+	4	5	5	-	Good
171	Vaduganathan	Y	Y	Elevated	Y	C,M	GA	ML	0.5	+	3	4	5	-	Good
172	Revathy	Y	Y	Normal	Y	C,M	EG	ML	0.5	+	3	4	5	-	Good
173	Manoharan	Y	Y	Normal	Y	C,M	GA	ML	0.8	+	5	6	6	-	Good
174	Ramiah	Y	Y	Normal	Y	C,M	GA	ML	0.5	+	4	5	5	W. infection	Incisional hernia
175	Panchanathan	Y	Y	Normal	Y	C,M	EA	ML	0.5	+	4	5	5	-	Good

	NAME	Dehydration	Air under diaphragm	RFT	IVF	Antibiotics	Anaes	Incision	Perforation cms	Live Omental patch	B.S day	R.T removal	D.T removal	Complication	Follow up
176	Ayyavu	N	Y	Elevated	Y	C,M	GA	ML	1.5	+	5	6	6	-	Good
177	Mathiyalagan	Y	Y	Elevated	Y	-	-	-	-	-	-	-	-	-	Died
178	Kuthaian	Y	Y	Normal	Y	C,M	GA	ML	0.3	+	4	5	5	-	Good
179	Gunasekar	Y	Y	Normal	Y	C,M	GA	ML	0.8	+	3	4	5	-	Good
180	Kaliyaperumal	Y	Y	Elevated	Y	C,M	GA	ML	0.5	+	5	6	6	-	Good
181	Balakrishnan	Y	Y	Normal	Y	C,M	GA	ML	0.5	+	4	5	5	-	Good
182	Rajendran	Y	Y	Normal	Y	C,M	GA	ML	1.3	+	3	4	5	-	Good
183	Raja		Y	Normal	Y	C,M	GA	ML	1.5	+	3	4	5	-	Good
184	Suresh	Y	Y	Normal	Y	C,M	EA	ML	2	+	5	6	6	-	Good
185	Amudha	Y	Y	Normal	Y	C,M	GA	ML	2.3	+	4	5	5	-	Good
186	Rajan	Y	Y	Normal	Y	C,M	GA	ML	0.5	+	3	4	5	-	Good
187	Ramesh	Y	Y	Elevated	Y	C,M	GA	ML	0.8	+	5	6	6	-	Good
188	Kubendiran	Y	Y	Normal	Y	C,M	GA	ML	2.5	+	4	5	5	-	Good
189	Kaliyaperumal		Y	Elevated	Y	-	-	-	-	-	-	-	-	-	Died
190	Ganesan	Y	Y	Normal	Y	C,M	EA	ML	0.3	+	5	6	6	W. infection	Incisional hernia
191	Maliyappan	Y	Y	Normal	Y	C,M	GA	ML	0.5	+	4	5	5	-	Good
192	Anadhan	Y	Y	Normal	Y	C,M	GA	ML	0.5	+	3	4	5	-	Good
193	Karunan	Y	Y	Elevated	Y	C,M	GA	ML	0.5	+	4	5	5	-	Good
194	Rasaiya	Y	Y	Normal	Y	C,M	GA	ML	2.5	+	-	-	-	-	Died
195	Rengasamy	Y	Y	Normal	Y	C,M	GA	ML	0.5	+	4	5	5	-	Good
196	Sivakumar	Y	Y	Elevated	Y	C,M	GA	ML	1.3	+	3	4	5	-	Good
197	Abdul	N	Y	Normal	Y	C,M	GA	ML	0.5	+	4	5	5	-	Good
198	Panjan	Y	Y	Normal	Y	C,M	GA	ML	0.5	+	5	6	6	-	Good
199	Manickam	Y	Y	Normal	Y	C,M	GA	ML	0.5	+	4	5	5	-	Good
200	Kaliyaperumal	Y	Y	Normal	Y	C,M	GA	ML	0.8	+	3	4	5	-	Good